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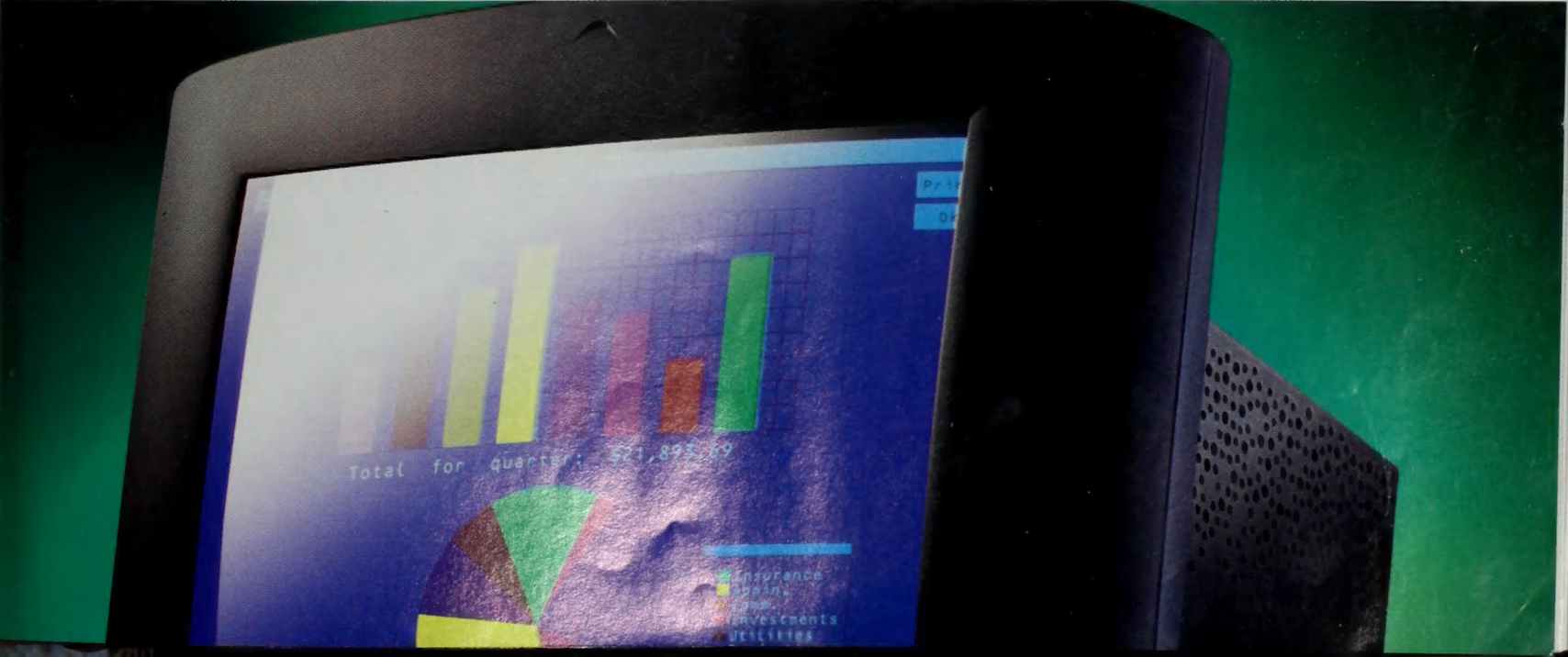
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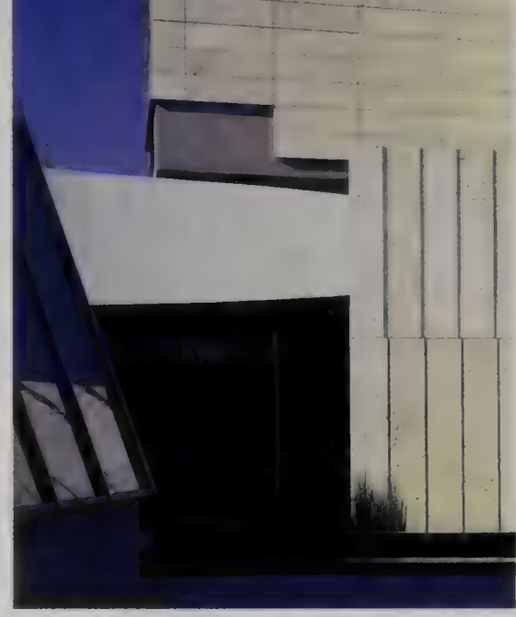
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CIRCLE 2 ON INQUIRY CARD

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Dialogue

29 Editorial **36 Speak Out** **40 Pulse**
32 Letters **38 Mentors**

News

49 Pritzker winner Sverre Fehn, 72, offers insights for young architects
50 California architects in battle with state engineers
53 1996 GSA Biennial Design Awards

Projects

American Institute of Architects 1997 Honors & Awards
A critical profile of the awards process and a review of the winners by Michael Sorkin, Malcolm Holzman, David Dillon, and Margaret McCurry.

67 Introduction
70 Architecture Honor Awards
82 Interiors Honor Awards
86 Urban Design Honor Awards
90 Firm Award
94 25 Year Award

102 Temasek Polytechnic, Singapore
Analysis: A "city of learning" in Singapore by Stirling and Wilford was James Stirling's last built project.

Features

124 Saving the Soul of Architectural Education
Four critical challenges face today's architecture schools.

136 Crescent City on the Edge
New Orleans is becoming a place to love and mourn.

147 Through the Viewfinder
A portfolio of historic photographs by Ezra Stoller.

Building Types Study 749

165 Healthcare Facilities
Essay: Whither the Hospital? by Clifford Pearson

168 Carl J. Shapiro Clinical Center, *Boston, Mass.*
Rothman Partners, Chan Krieger, Solomon & Bauer, Architects

174 Sharon Hospital, *Sharon, Conn.*
Perkins & Will, Architect

178 Altoona Hospital Outpatient Center, *Altoona, Penn.*
Hayes Large Architects

182 Alta Bates Comprehensive Cancer Center, *Berkeley, Calif.*
Rochlin Baran & Balbona, Inc., Architect

Technology

207 New Tools in Fire Protection
New regulations mean architects must keep their strategies current.

215 AutoCAD 14 on the Way
The new version of AutoCAD is almost ready for release.

217 Stop! Read this before you buy
Some basic advice on your next computer upgrade.

Products

247 Fabric Panels for Sound-Control
251 Product Briefs
254 Product Literature

260 Dates/Events/Books
282 AIA Continuing Education Self-Report Form
285 Reader Service Card
302 Classified Advertising
304 The Future

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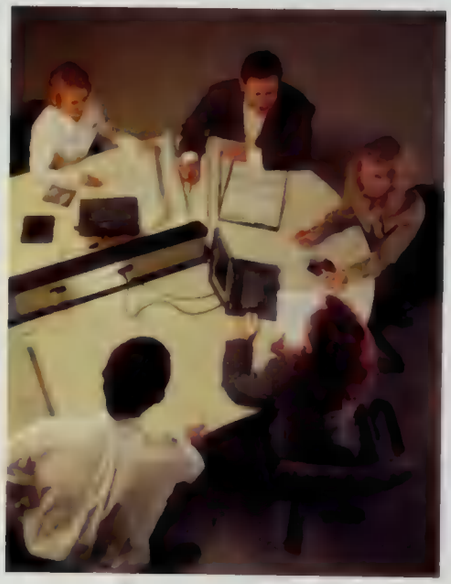
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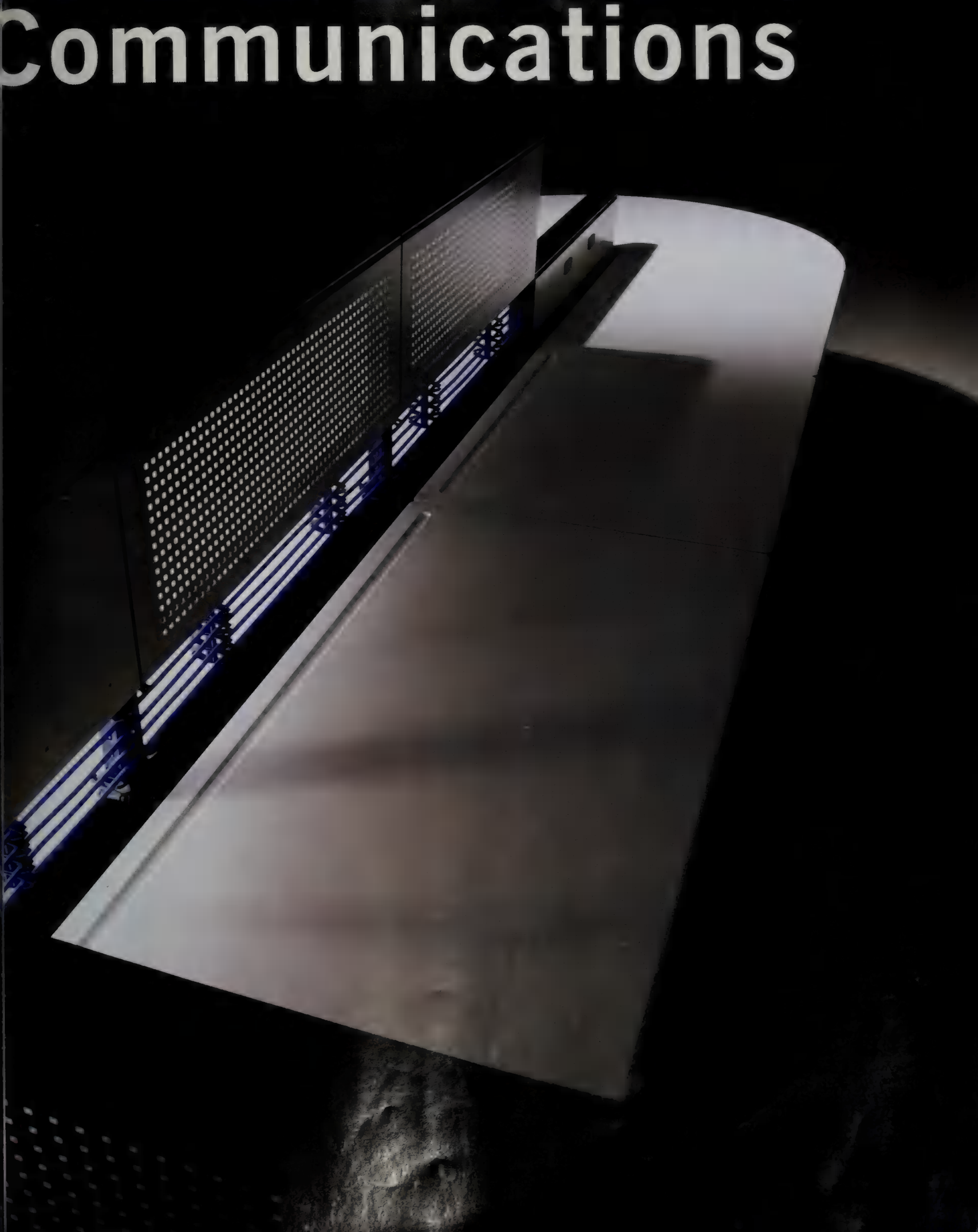
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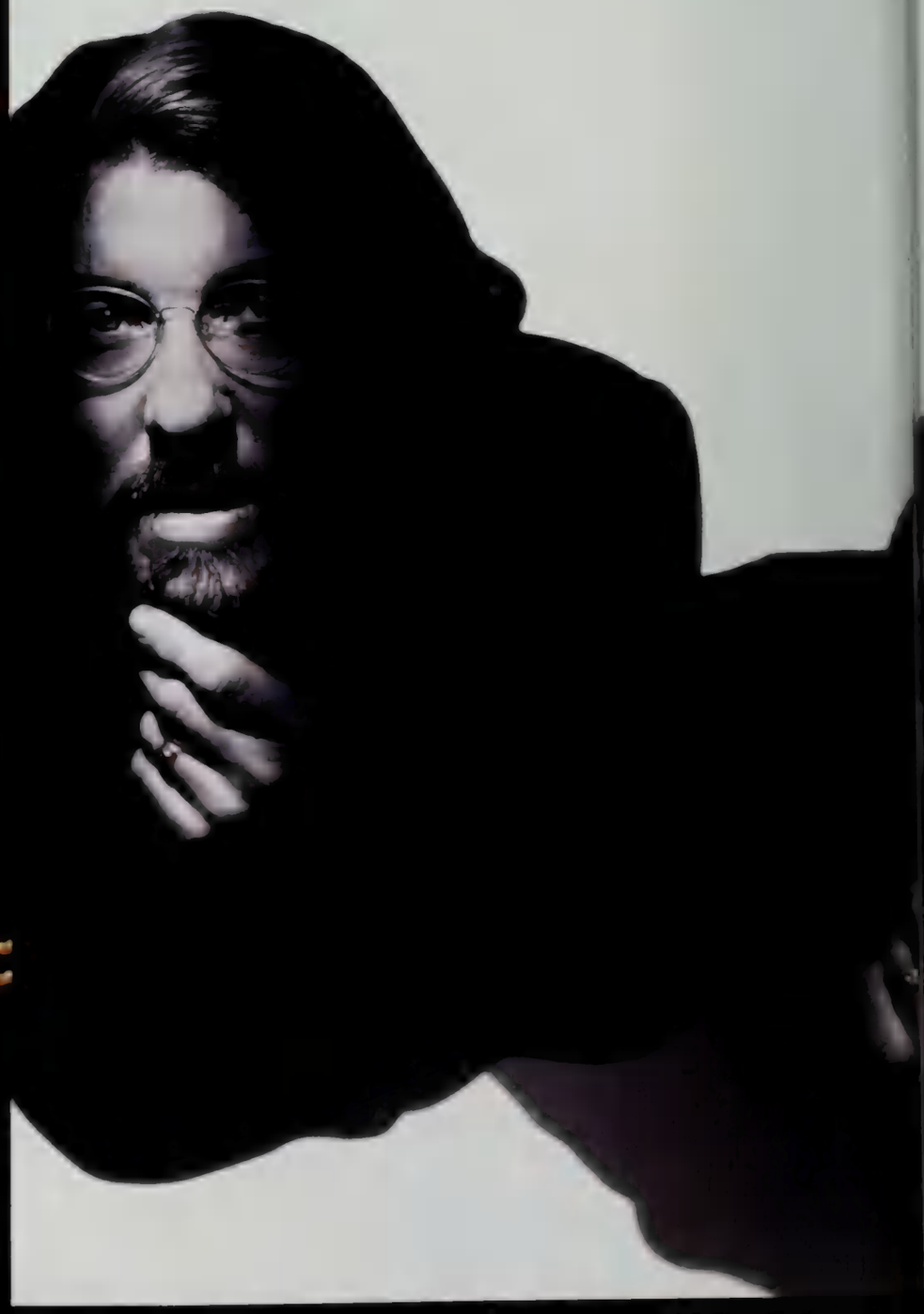
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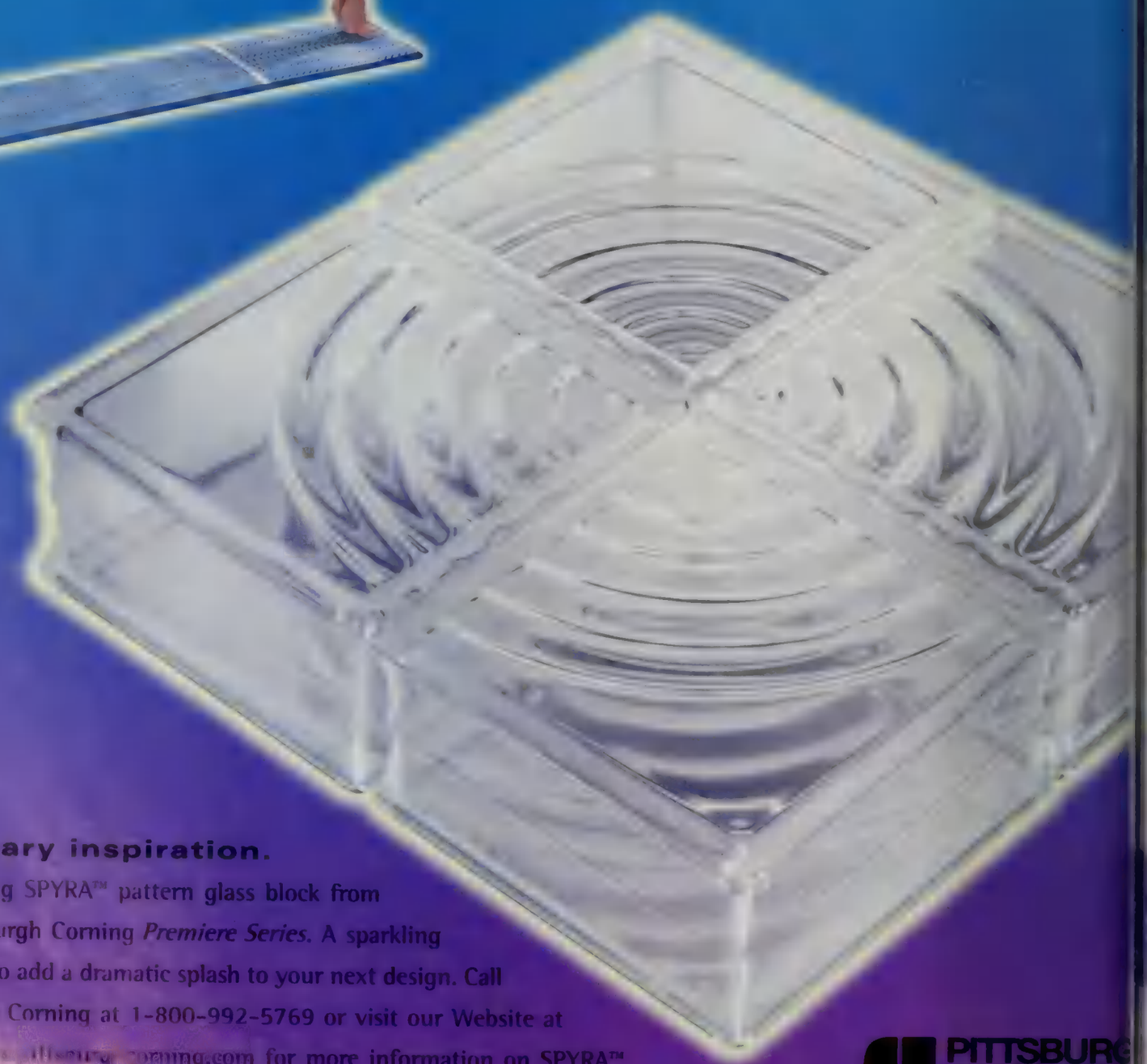
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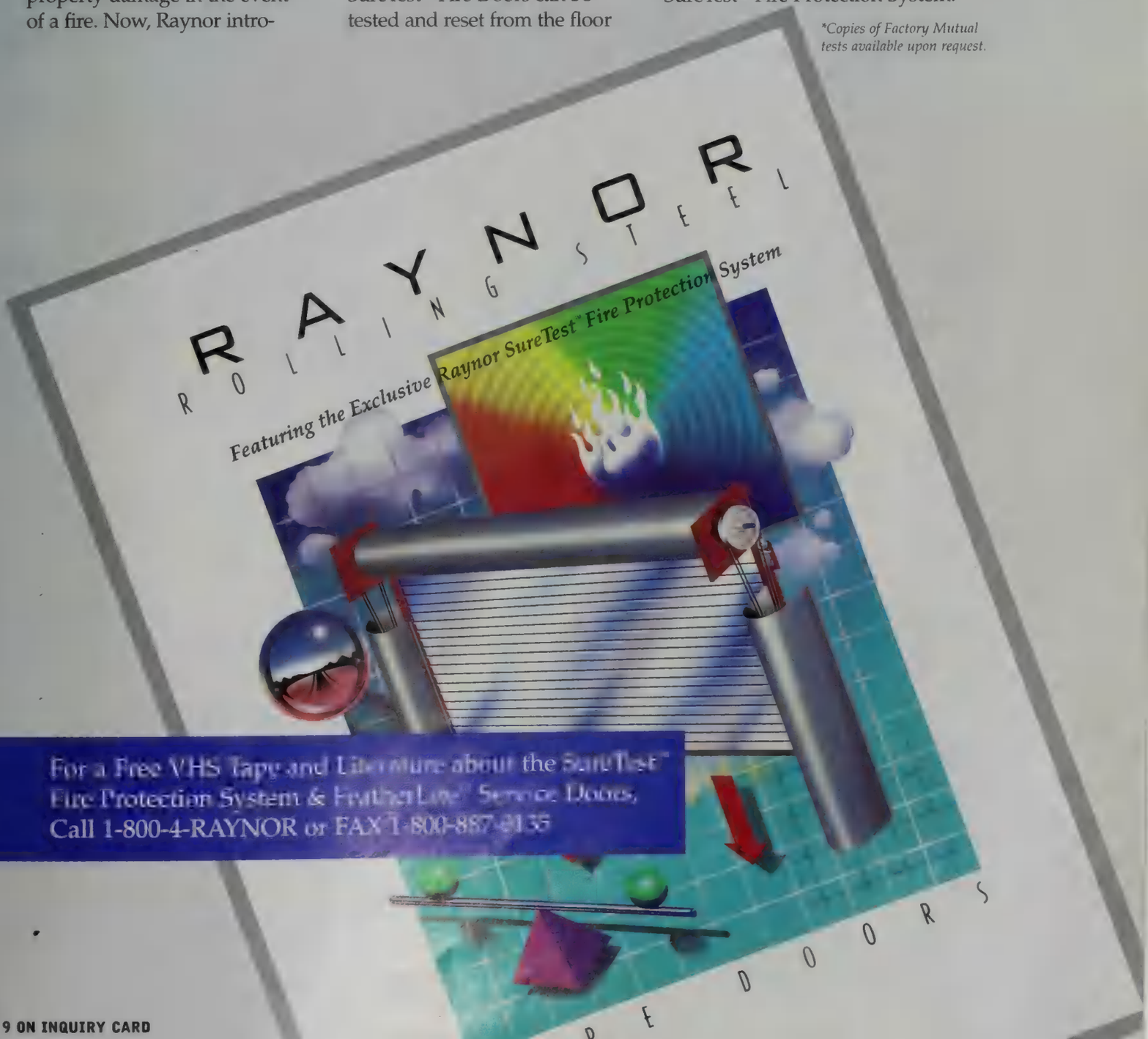
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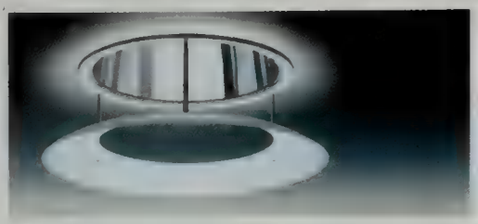
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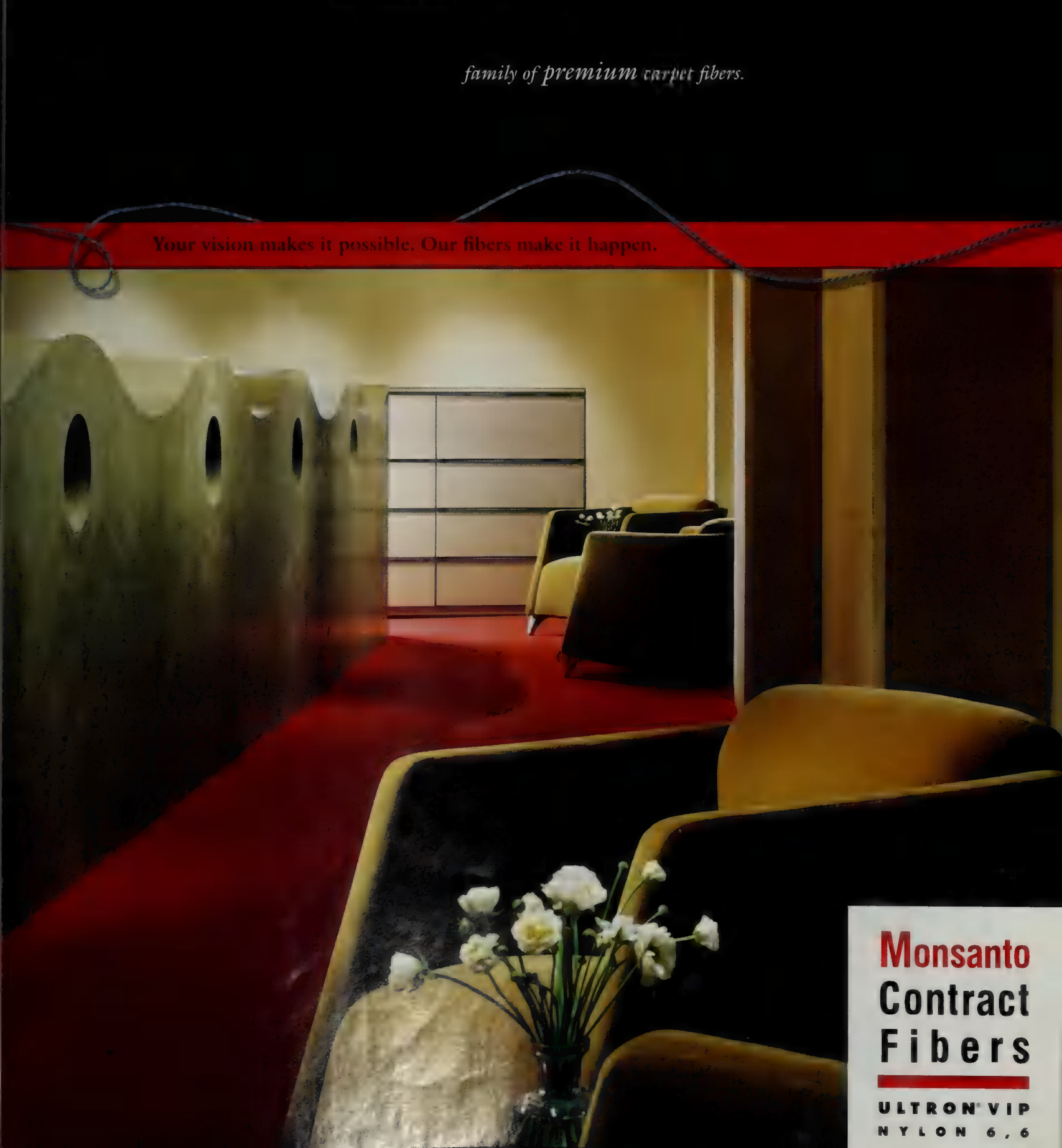
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EDITORIAL: From Singularity to Cooperation

BY ROBERT A. IVY, FAIA

Here is one clear point I'll be happy to debate with you: The time has come for a collaborative Gold Medal, but only when the occasion warrants. Disregard personality for a moment, since this change is not leveled at any specific partnership. Set aside politics and polemics, although ideology underlies my assertion. Instead, I argue primarily from reality, modified and evolving with architectural practice.

The nature of who an architect is, and what he or she does, has changed from master builder to spirited collaborator—whether with client, consultant, or partner. Call it the zeitgeist, the spirit of the age, or something in the water; perhaps it is a by-product of feminist realpolitick. It is not uncommon today to find couples and small groups, regardless of gender, practicing together at the highest levels of creativity and skill, filling in each other's thoughts, dancing in each other's minds. Often, the genesis and development of ideas float above the studio, hovering blissfully above hierarchy or ownership, the fruitful product of intellectual mating, by one or many.

Yet publicly, we continue to recognize and honor our own professional efforts through a narrow lens, and the perspective is limiting. We are stuck with a top-down pyramid that glorifies the extraordinary contributions of a handful, the "stars" of our tiny galaxy. By limiting this panoply to a few, isolated persons, we sanctify them, confusing both other architects and the public we seek to engage. Such architectural demigods inhabit an easy, mythical realm, but reality is richer, laden with effort, and more human.

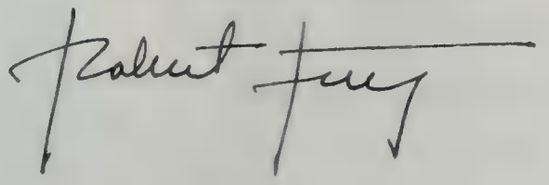
We have tried to correct the imbalance without complete success by honoring firms. Kliment and Halsband are the worthy recipients this year of the AIA Firm Award, yet somehow the firm award lacks the symbolic luster of gold. It is a question of semiotics, of the signs and symbols of our actions. There is but one gold standard, one precious metal linked inextricably in the collective imagination with the highest and best. One sign of what we care about most.

Don't mistake my purpose: The idea of honoring architects is good, but the idea of limiting the number for a given project is archaic. Historically, the glorification of the individual is kin to a nineteenth-century notion bound to Emersonian individualism, Napoleonic hubris, and the Romantic poets—the male cult of genius. Is this the message we want to share with the larger culture?

My argument in no way is meant to diminish the outstanding contributions of this year's winner, Richard Meier, or previous winners. Art is often tied to the individual, as these strong individualists prove. Instead, I propose that in reviewing a listing of architects producing stellar work in 1997, among the generation currently in their 40's and early 50's, contemporary genius often includes a shared vision.

My proposal applies to other honors programs, such as the Pritzker Prize, whose juries must ultimately face the same questions. Of other awards programs, it must be noted that the Royal Institute of British Architects made the switch in 1979 by honoring a husband and wife design team, Charles and Ray Eames.

Where can we make an immediate difference? I suggest that America's architects, through their representative body, the American Institute of Architects, make a positive change in one small, significant way. Open the Gold Medal to the potential of collaboration. My guess is that the majority of future honorees will be individuals. However, by broadening the medal to include joint winners, the Institute will send an important message that our institutions are capable of change, as our profession shifts focus from singularity to cooperation.



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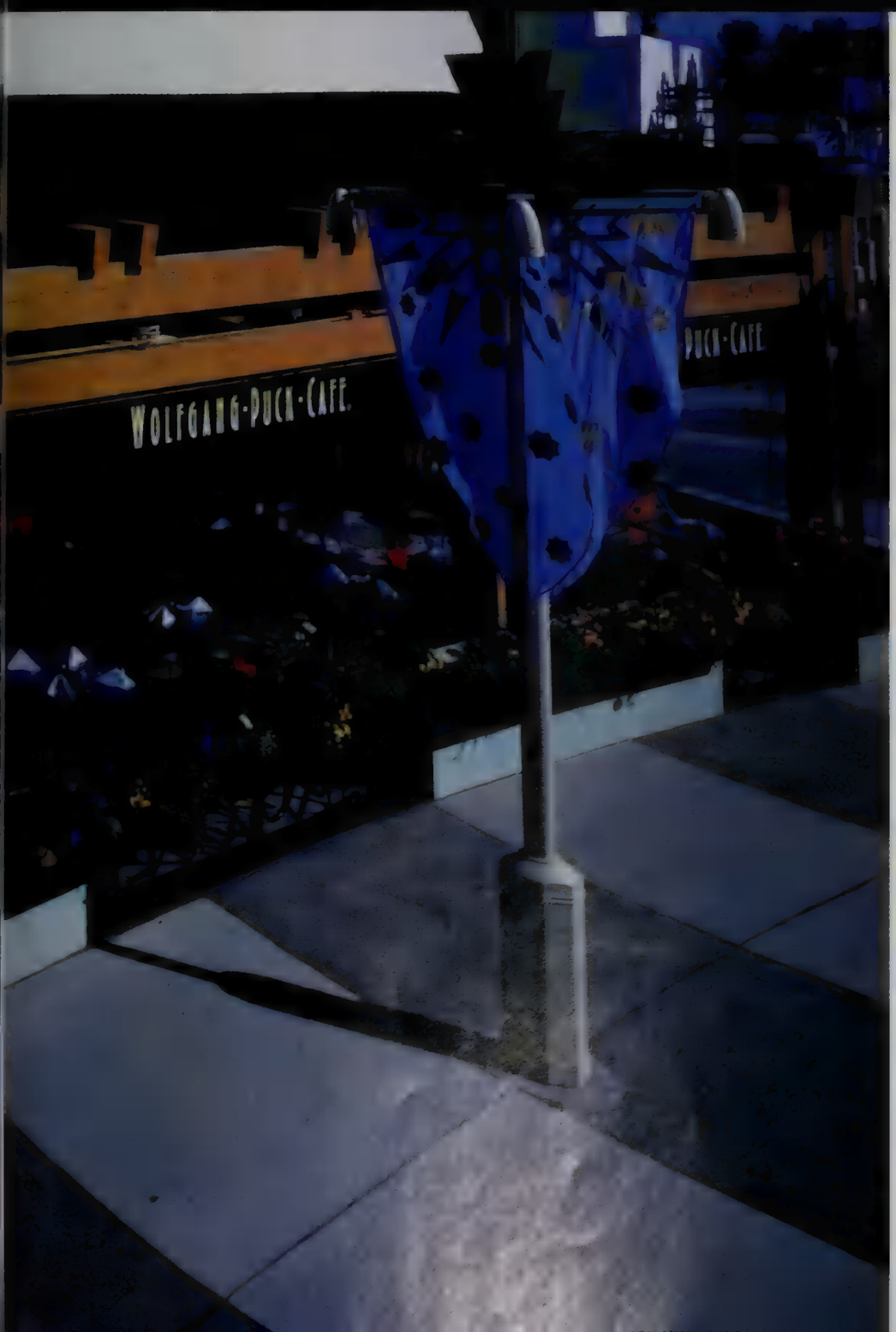
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CIRCLE 15 ON INQUIRY CARD

LETTERS

ARCHITECTURAL RECORD solicited the following letter as counterpoint to this month's editorial.

AIA Gold Medal: one award, one architect

The Gold Medal of the American Institute of Architects says volumes about what architecture is and what it is not.

Everyone understands that architecture is—inherently and fundamentally—a collaborative undertaking. No architecture is ever the product solely of one person. From the initiation of a project by a client, to the actual design by the architect, to the creation of the working drawings by his or her staff and the translation of the drawings into the language of construction by the contractor, all sorts of contributors participate in the creation of a project. It has always been so.

However, while the substance of architecture is the result of collective effort, its soul comes from the spirit of the individual. From time to time this world is blessed with those special individuals who, by dint of personality, intellect, and force of will, bring to that collaboration their essence, which elevates the results to something that soars—something that is unique and uplifting and memorable. It is the contribution of the individual that separates architecture from mere construction, and it is this special individual spirit in architecture that the Gold Medal recognizes and celebrates.

Every so often, the criteria of the Gold Medal is reviewed by the AIA Board of Directors and the idea of a collaborative or group Gold Medal is exhumed. This usually happens when one pair of popular architects or another insist that their work is pure collaboration and that neither would accept the medal without concurrent award to their partner. Fortunately in the past the [illegible] has brought the board back to an understanding of what the Gold Medal really stands for.

The argument for a collaborative Gold Medal sometimes rests on the assertion that the profession has changed dramatically and fundamentally since the initial criteria for the Gold Medal was written. Of course, it has changed. Change is the only sure thing about the profession. But that is an issue of style, not substance. We all change our styles of dress fairly frequently, and sometimes rather drastically, but we are still cladding basically the same number and layout of limbs.

Sometimes good things come from this periodic revisit. For instance, in recent years, the board has recognized that much more emphasis should be given to the recognition of the importance that uniquely inspired collaboration brings to our art; to that end, the AIA Firm Award has been given much elevated status in recent years, as it should be.

The AIA Board is once more reviewing its awards policies, and the Gold Medal criteria are again being reconsidered. From what I see, this is a good and thoughtful group of Regional Directors, and I would be very surprised if their judgement were to be clouded by a misreading of what the Gold Medal says about the profession. Altering the criteria to include pairs or groups or whatever may be a feel-good notion at first blush, but would miss the fundamental intention of the award. The creators of the Gold Medal knew what they were doing when they stated that the Medal should be awarded "...to an individual who has made significant contribution to the profession of architecture." They knew—and I am confident that this Board will concur—that the Gold Medal is like a river; when you alter its natural course, what you gain in width you will surely lose in depth.

L. William Chapin, II, FAIA
Daytona Beach, Florida

Licensing exam

I read the *Mentors* column of your April issue [RECORD, page 28], in which Robert K. Clough, FAIA, advises Bracken Raleigh on the professional licensing exam. I commend Clough for the encouraging words he offers to this perplexed individual. One must wonder why, after 30 unsuccessful attempts to pass the professional licensing exam, Raleigh hasn't taken up telemarketing or undergone therapy to change careers.

More importantly, however, is the issue of a nonlicensed individual openly practicing (to the tune of $5.3 million by his own admission) without chastisement from the AIA. Clough was right to encourage him so that he might practice legally but wrong to allow him to do so illegally.

–Charles D. Carter, R.A., C.S.I.
Duchscherer Oberst Design PC
Buffalo, New York

Sensing the future, now

Your enthusiastic report of an exciting future in structural sensor technology [RECORD, March 1997, page 190] was applauded by practitioners of automated structural monitoring in my office. The federally funded applied research efforts you wrote about will doubtless advance sensing technology to a level that soon precludes even the need for tying fiber optic tapes to reinforcement and other structural elements. I believe the next decade will bring microscopically task-specific, cable-free, remotely transmitting sensors or sensor bundles that will be distributed throughout the raw materials during the manufacture of a structural component. These advances are already being explored by both defense and civilian manufacturing sectors.

Remote structural monitoring experience of more than two decades has taught us that the greatest impediment to technologically farsighted structural monitoring is not the lack of suitable sensors, complexity of cabling efforts, environmental interference, or scarcity of ruggedized systems. It is, primarily, the tendency of owners and the construction community to plan and finance critical public and private structures on a "first-cost" basis that greatly hinders the life cycle needs of the structure. While all facilities may not benefit from advanced sensor systems, the construction community has systematically deferred monitoring of the effects of age, repeated loading, accidents, deterioration, and other conditions to the next generation of owners and professionals.

To place things in perspective, consider the advanced sensor-based hvac/mechanical monitoring systems that are routinely installed in large commercial and industrial facilities with realized benefits in the form of operating and maintenance cost savings. Structural monitoring networks would be no more costly.

On this basis, assess the owner/public benefit to be realized from corrosion rate sensors on components in aggressive environments, or fundamental structural frame sensor networks passively monitoring effects of a structure's settlement or seismic activity, acquiring fatigue response data, and enabling immediate identification and cordoning off of structurally unsafe zones for emergency and rescue personnel. These structural monitoring networks can be installed in most modern buildings; digital communication spines necessary for structural monitoring networks have been built in.

What is the moral of this story? We must do a better job of disseminating information regarding the practical benefits of so-called smart structures. They already exist and talk back!

–Adrian T. Ciolko, PE
CTL Structural/Architectural Engineering, Testing and Materials Technology
Skokie, Illinois

The architect as heroic design visionary?

We are writing in response to the publication of the Sahara West

(Letters continued on page 35)

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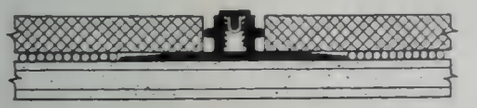
CIRCLE 37 ON INQUIRY CARD

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CIRCLE 17 ON INQUIRY CARD

(Letters continued from page 32)

Library in Las Vegas [RECORD, March 1997, pages 54–61]. As presented by RECORD, authorship of the project was solely attributed to the project's Design Architect, downplaying the role and importance of the Executive Architect. This perpetuates the practice of framing the architect as heroic design visionary, without recognizing the value of technical expertise and managerial acumen. This definition, aside from being at odds with the common practices of the profession, diminishes public awareness of the role and breadth of the architect's responsibilities.

In the case of Sahara West Library, responsibilities between the Executive Architects and the Design Architect were divided along technical and esthetic boundaries. Beyond this, the Executive Architect was the overall project administrator, with the sole responsibility for associated consultants' services and construction contract administration. As contractually defined, the role of the Design Architect was to establish esthetic intent, general massing and dimensions, and esthetic review during the post-design development stages of the design process. In addition to administrative duties, the Executive Architect's contribution to the design process was essential, providing expertise on local issues, including an experiential understanding of the demanding regional climate, appropriate materials usage, and particulars of the local construction industry.

Ultimately, the contextual input, production of construction documentation, and construction administration weights authorship of the built project (versus the esthetic design) equally with the Design and the Executive Architects. Further, the difference between design and building has an insulating effect for the respective firms. For the Design Architect, this translates into being distanced from the repercussions of both construction difficulties and public opinion. In this case, public opinion has not been favorable, which was not fully covered in your article. The Executive Architect, on the other hand, is primarily excluded from project accreditation, while being vulnerable to the lasting effects of public perception. Within the Executive Architect's community, the success of the building is essential to maintaining the positive reputation necessary to the pursuit of new work. RECORD should recognize that the presentation of the Sahara West Library, which focused solely on the role of Meyer, Scherer & Rockcastle (possessively in the article's title), reasserts the public's perception of the Executive Architects as secondary.

It should be the responsibility of the publisher to verify the role of respective architects in joint ventures. In the case of Sahara West, the Executive Architect was essential to the design process for local expertise, as well as the legal aspects of being the construction architect of record and should, at least, be recognized consistently and equally.

–William E. Snyder, AIA
Tate & Snyder Architects
Henderson, Nevada

Entertainment design

Is there something wrong with the way you are binding your issues? Our copies have been bursting at the seams...most likely from overuse and rereading by eager associates in the office. I would like to congratulate the RECORD team for a successful and popular transition to an impressive new format.

I was particularly intrigued by your Building Types Study 747 [RECORD, March 1997, pages 90-115]. There is a growing need in the post-television era for "real" fantasies. Viewers want to leave their living rooms to actually experience the fantasy. Technological advances in all media have blurred the line between fantasy and real experiences to the point that it has

(Letters continued on page 274)

SPEAK OUT Designing Abroad: "Architects need to design with greater sensitivity to foreign cultures."

BY KHALIL K. PIRANI



Khalil K. Pirani works for Graham Gund Architects in Cambridge, Mass. He received an AIA Advanced Research Scholarship award in both 1995 and 1996 to study the architecture of mosques in the United States. Currently he is working with Attilio Petruccioli, the director of the Aga Khan program for Islamic Architecture at the Massachusetts Institute of Technology, on a book titled Understanding Islamic Architecture.

With the increase in communication systems from high-speed modems to the Internet, combined with the demands of a booming international construction market, architectural ideas and design trends get transmitted across cultures and national boundaries in a matter of minutes. This has allowed architects with often limited knowledge of their foreign clients' culture and design traditions to take on the responsibility of creating important buildings, many that will stand for decades as civic symbols.

This phenomenon has flooded developing countries with buildings seemingly identical to those in New York City and Dallas, and with very little relation to the indigenous society. More than ever before, it is important for architects to understand foreign cultures and design buildings abroad with a higher degree of sensitivity.

The architecture of Islam is a case in point. For many American architects, Islamic architecture is nothing but buildings with either domes or arches—history provides only a menu of architectural icons and embellishments from which to choose. Such an attitude has produced buildings in Muslim societies devoid of meaning and proper interpretation of the culture. This, coupled with an increased craving by clients for Western styles as symbols of progress and modernity, has diluted opportunities for the development of a contemporary architecture of Islam.

A common image of international projects in China, Malaysia, Saudi Arabia, or Kuwait is a skyscraper towering over a low-scale fabric. This may be a result of a client's wishes to have a singular symbol, but architects need to ask if this is the best solution.

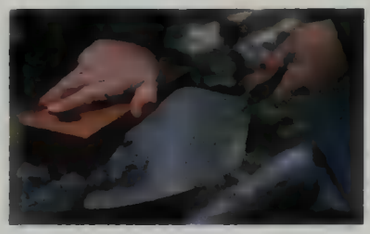
Architecture in Muslim societies, however, need not be like that of the West nor simply an amalgam of traditional icons. It can be something that takes advantage of Western developments in technology while keeping in sync with the local culture. The Islamic faith maintains that there is no separation between the material and the spiritual, and so new houses, schools, and office buildings have to not only provide a higher level of finish and detail, but also fulfill the more intangible assignment of elevating the souls of the users. But as architects who closely study the culture can learn, Islam encourages principles that have architectural implications: diversity as a strength, not a weakness; respect for nature and its eco-systems; concern for the poor.

One good example of reconciling Western aspirations of high technology with the lessons of the local building vernacular is the Aga Khan University, Hospital and Medical College in Karachi, Pakistan [RECORD, May 1987, pages 136-149] by Payette Associates of Boston. It contains state-of-the-art medical facilities (the hospital has an affiliation with Harvard University), but it is housed in a cluster of ruddy-colored, low-rise structures that blend with Karachi's reddish soil. The project was clearly the outcome of intensive design investigation on the part of both the client and the architect. (Other good examples of a successful interweaving of cutting-edge construction systems and time-honored building techniques are found among the winners of the Aga Khan Award for Architecture. The program, based in Geneva, Switzerland, recognizes architectural achievement by and for Muslim peoples.)

Foreign countries, including the European nations, look to North American architects to take a lead in architecture, both in education and output. This makes it all the more important for American firms to increase their awareness of and sensitivity to foreign cultures. Moreover, it also demands a more rigorous education process for local architects in the developing countries since designing outside the U.S. should be a sharing process among the outside architect, local architect, and client. The local architects need to be both receptive to new ideas and also teach foreign architects their cultural values and traditions. As American architects like Peter Eisenman and Frank Gehry have commented, foreign cultures have as much to offer us as we have to share with them. ■

Contributions: *If you would like to express your opinion in this column, send submissions: by mail (with a disk, if possible) to Speak Out, Architectural Record, 1221 Avenue of the Americas, New York, N.Y. 10020; fax 212/512-4256; or e-mail: rivy@mcgraw-hill.com. Essays must not exceed 700 words. The editors reserve the right to edit for space and clarity. Where substantial editing occurs, the author will receive final text approval.*

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MENTORS When it's time for residential owners to stop calling, and how to handle clients who compare your fees to cheaper firms.

Duo Dickinson is a registered architect in Madison, Conn., whose residential practice has built over 250 projects. He has taught at Yale University and Roger Williams College, and has written five books on the subject of residential architecture.

Michael Strogoff, AIA, is a negotiations consultant in Mill Valley, Calif, and has taught seminars to AIA chapters and related organizations. As an advocate for architects, he leads or advises firms throughout the negotiations process.





As a sole practitioner with a large percentage of my work being residential, I deal personally with my clients several times a week, if not several times a day, depending on the phase of the project. I usually enjoy the interaction, and often find that their involvement enriches the design. But what about when the project has come to an end, and the client's calls have not? For how many months, years, do I continue to be the liaison between the client and the general contractor, or the resourceful problem solver for my clients?
—unsigned

Duo Dickinson responds: In legalistic terms, your liability/responsibility can be tightly circumscribed by existing AIA documents B141, The Standard Form of Agreement, and A201, The General Conditions of the Contract for Construction, but given the exquisitely human qualities of residential design, architects need to learn more from psychotherapists than lawyers about how to reach "closure." In truth, you should set the "rules" for transitioning out of an active role before signing a contract.

Very few homeowners have ever worked with an architect. As an architect you are not only responsible for showing clients the potential for utility and delight in their home, but you should also be telling them how architects work in general and how you run your specific practice.

Most small firms engaging in residential design run the risk of selling themselves as purveyors of objects vs. the truth that you are a service provider—offering a process that has a beginning, a middle, and, an end to it. If the client feels that you are providing them with an object, then you are in effect the "parent" of that object and responsible for its development through infancy, the wonder years, awkward adolescence, and on and on. Before I sign a contract with a client, I make it absolutely clear in writing that architects present builders with a defined scope of work they are responsible for executing and that our responsibility is on the side of design vs. technological monitoring.

The greatest gift that architects can give their clients is to communicate from the "get go" until the paint's dry so that their learning curve for the process can be overcome early thus preventing unwarranted expectations.

Our standard approach when negotiating fees is to present either a list of tasks with associated hours, or to quote a percentage of construction cost based on our firm's experience. Invariably, though, our clients end up comparing our fees against other firms with supposedly lower fees. How do we get around this?
—unsigned

Michael Strogoff responds: First, dispel the misconception that an architect's fees can be easily compared to those paid to other firms by highlighting the distinct features of your project (e.g. numerous public spaces, uses of new technology, extensive site investigations).

Second, relate any extra efforts included in your scope that will benefit your client. For example, to address a tight construction budget, convey the time your team allocated for analyzing how to minimize new construction or reuse equipment.

Finally, differentiate between your fee for basic services (those typically included in an architect's initial scope) and expanded services (such as programming, computer renderings, and special subconsulting disciplines). Also, discuss how each expanded service reduces your client's exposure. For example, expanded C.A. responsibilities enable earlier observation of construction defects; additional agency reviews facilitate earlier approvals; more exhaustive surveys of existing conditions uncover unknowns and reduce costly change orders.

If your client is still relying on fee comparisons, reinforce the benefits that you uniquely bring to the job. Your firm might offer more personal service, or focus exclusively on your client's building type. Also, give your client a rationale to justify your fees to others to overcome what is often the final obstacle to reaching agreement. ■

Questions: *If you have a question about your career, professional ethics, the law, or any other facet of architecture, design and construction, send submissions: by mail to Mentors, Architectural Record, 1221 Avenue of the Americas, New York, N.Y. 10020; fax 212/512-4256; or e-mail: rivy@mcgraw-hill.com. Submissions may be edited for space and clarity.*



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CIRCLE 19 ON INQUIRY CARD

NEMETSCHEK

PULSE RECORD readers were asked: Is themed retail architecture real architecture?

YES: 62%

Yes: "Of course! Some of the greatest architecture in the world is 'themed retail' architecture. Consider the Grand Bazaar in Istanbul—the first shopping center in the world. The structure is an incredibly ornate, stylishly 'themed' retail marketplace.

"Architecture must be brought out of the elite realm of the academic and into the real world where people live and function. Life is filled with mundane environments. People seek color, light, fun, excitement, and enjoyment. They want to be entertained and to see other people being entertained. Architecture can help to create such an atmosphere.

"It would be interesting to know just how many renowned architects take their families to theme parks to enjoy a 'themed retail environment.'"
—Katie Carney,
Baltimore, Maryland

Yes: "The responsibility of real architecture is to provide function, structural integrity, and beauty, and, lest we forget, to do all this to the satisfaction of the client/consumer. Themed retail architecture may be seen as Postmodernism promoting and running away with itself, yet it remains an architectural style. A client or consumer who finds such design usable and attractive has been successfully served."
—Miles Battle,
Washington, D.C.

Yes: "Just a few years ago, I would have said no, but as I grow professionally, I respect any building that gets built. I'm not sure whether being 'real' has anything to do with a client's lack of taste."
—Ty Holcolmb,
Fort Worth, Texas

NO: 38%

No: "Themed architecture buildings are merely fantasy sets like those in Hollywood. They do not provide a timeless environment that enhances the quality of life.

"Themed architecture certainly makes a lot of business sense for the developer and those who can afford a quick fix for their appetites. But those are temporary phenomena and should not be considered equal to a viable environment where all pieces fit together seamlessly.

"Yes, themed architecture may be a niche for design professionals, but at what cost? Everyone is trying to outdo each other by building bigger and more outrageous monuments to themselves or to developers. The 1980's mentality all over again? Yes. Architecture? Nah."
—Rick Hsu, Taiwan
Seattle, Washington

No: "Themed retail architecture ca be mere escapist fantasy or exemplary design. If the objective is to sell the product, what better advertisement than the building itself? How exciting it would be if the build ing celebrated the people, processes, and technology that went into making the product.

"Buildings for the Olivetti company exhibited the same care, precision, attention to detail, and design innovation embodied in their office machinery. Architect Hans Hollein's jewelry shop in Vienna is a precious stone unto itself: Reflective, polished surfaces and well-crafted showcases invite onlookers to admire work by skilled artisans. Any other 'theme' reveals a lack of confidence in the product."
—Dave G. Hampton,
Winston-Salem, North Carolina

This Month's Question:

Should faculty members at architectural schools be licensed?

Fewer than half of the nation's 4,000 full-time and part-time faculty hold architectural licenses, according to the National Architectural Accrediting Board, Inc. One school, Montana State University, has for a decade required all architectural faculty, except historians, to be licensed. Many educators, however, disagree, believing that diversity makes a faculty stronger.

Do you believe that [illegible] all faculty at architectural schools should be licensed?
☐ Yes ☐ No

Copy and fax [illegible] or E-mail to rivy@mcgraw-hill.com

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May an editor contact you for further comments? ☐ Yes ☐ No

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CIRCLE 28 ON INQUIRY CARD



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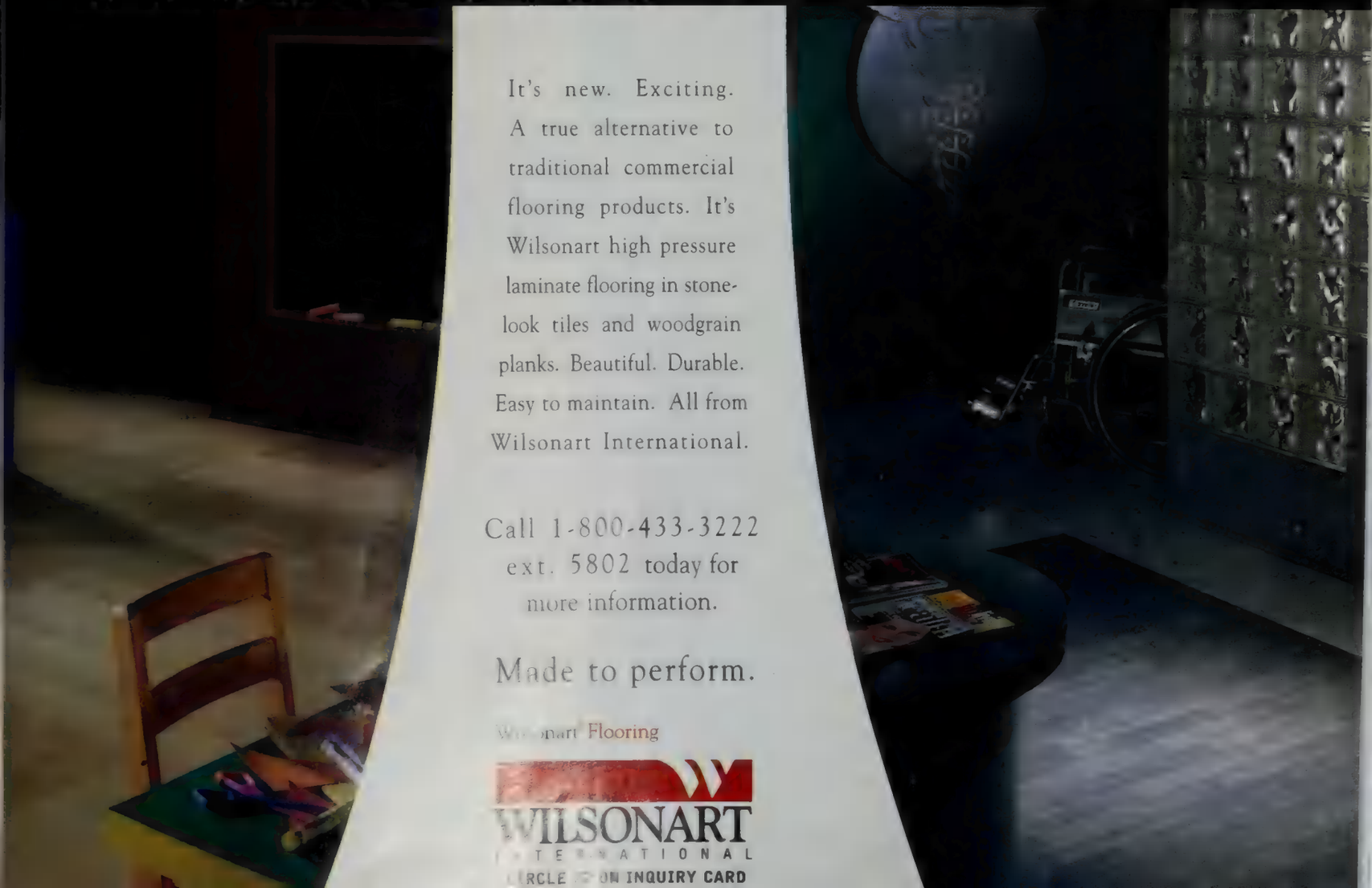
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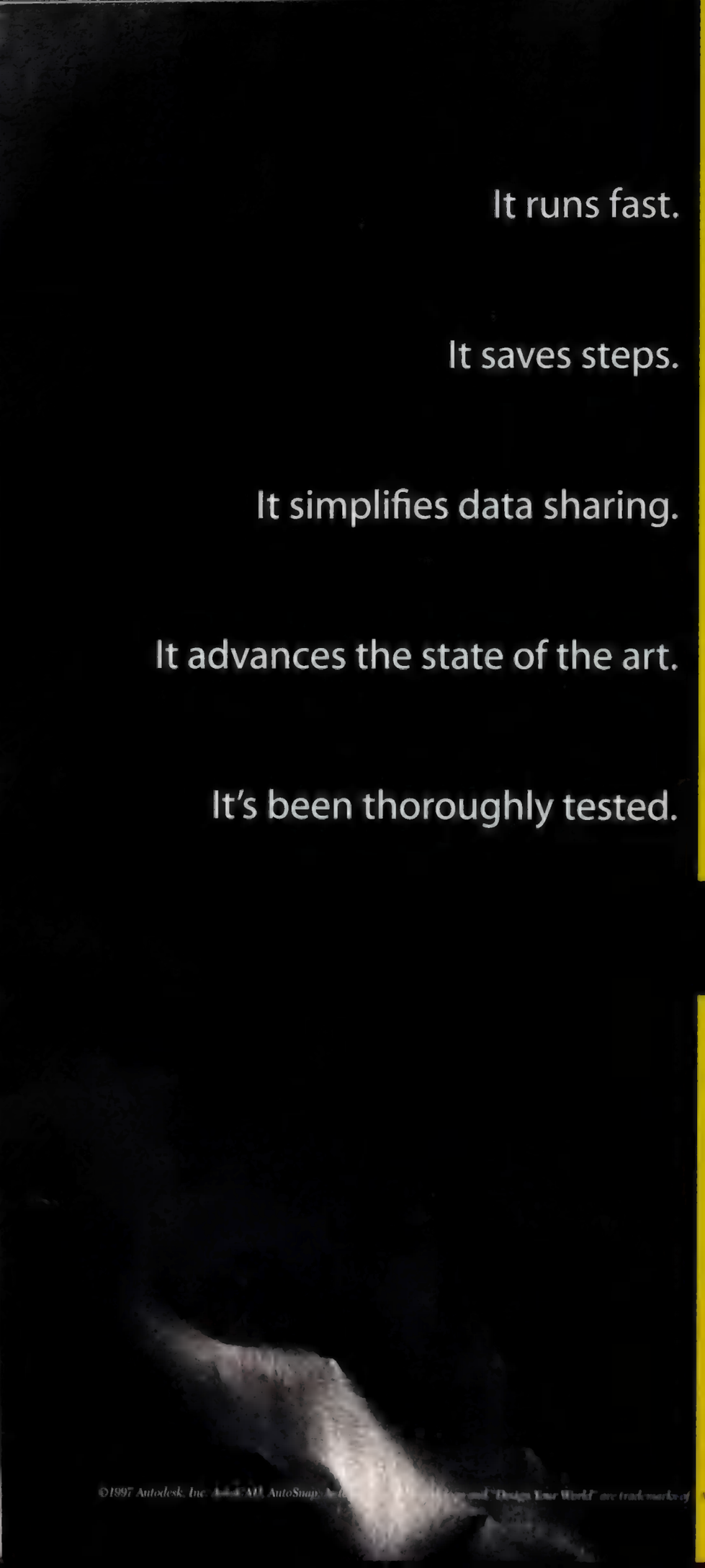
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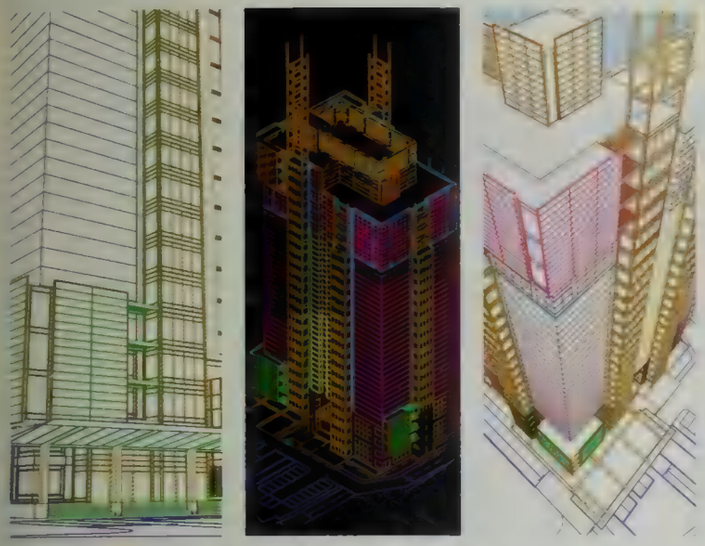
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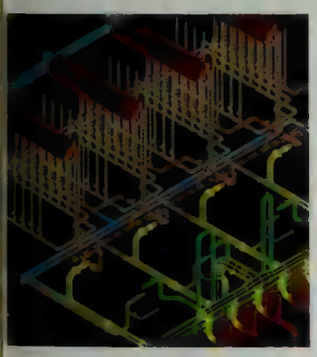
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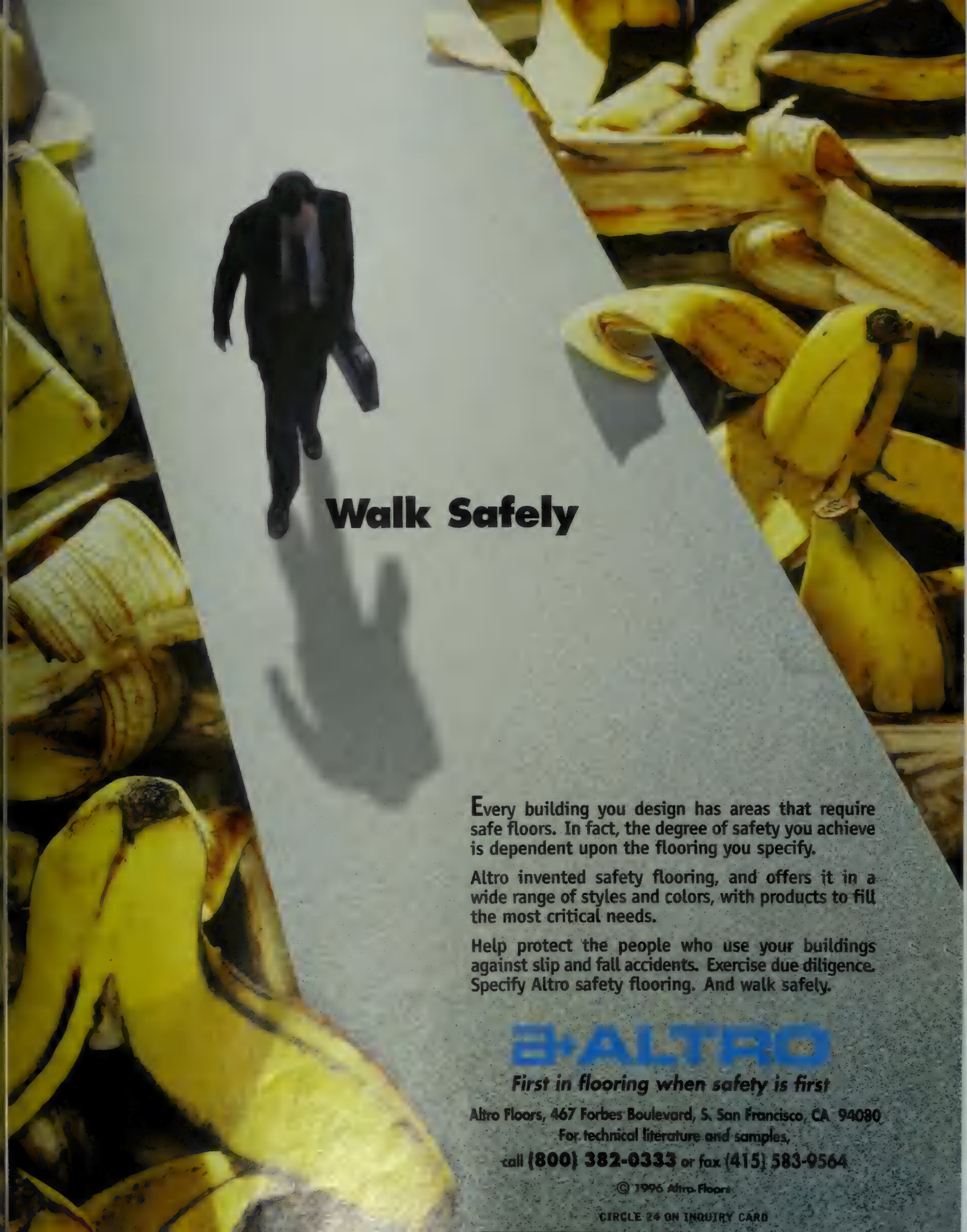
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PRITZKER WINNER SVERRE FEHN OFFERS INSIGHTS FOR YOUNG ARCHITECTS



At 72, Norwegian architect Sverre Fehn, the 1997 laureate of the Pritzker Architecture Prize, has no thoughts of retiring anytime soon.

In fact, he says, he's still learning his craft. How does Fehn define his work? What words of wisdom does he offer young architects? Is he optimistic about the future of architecture? RECORD spoke at length with Fehn. Here are highlights from that conversation.

RECORD: The jury was especially impressed that you steadily pursued your vision of Modernism without being influenced by trends. Do you think the Modernist label is accurate?

Fehn: I was always called a Modernist, but when I started to represent my work in Europe and the U.S., then I was called a Norwegian (laughs). My architecture was very Scandinavian. I tried to run away from it all my life, but didn't succeed.

I find it very mysterious, my architecture. It is filled with death and mysticism, the archetypes of light and darkness. Here the whole winter is dark, and when you're a child you need a big imagination to manage the darkness. Life is not so regular as in the south, where you have the same sun coming and going, and not so different in winter and summer. I am always fascinated by light and shadow, and precisely manipulating those forms. The contrasts, the enormity.

I think sometimes I have a deal with the climate, the nature, and the topography. It is important to get a dialogue between nature and creative life. Building is a brutal confrontation of culture on nature, and in that confrontation you can find balance and beauty. It's curious to say it, but at the same time the dialogue between the past and the present also has to be manifested.

RECORD: What do you say to young architects who are struggling to make a living and a reputation?

Fehn: There are so many philosophical streams affecting young people—Minimalism, Postmodernism, Deconstruction. It can seem overwhelming, but it's good for them. In a way, it's harder than one or two influences.

I do see a big difference in the way I was a young architect and the students I see now. They are too wound up in materialism, so they have to have a good job to keep all their cars and TVs. In my day I had a drawing table and worked.

It's important for young ones to travel a lot, especially to places like North Africa, to learn how few things you need to have a pleasant life. Or consider a Japanese house without furniture. As a teacher I always took students to Spain and Morocco, where architecture isn't primitive but simple. It is an important lesson to appreciate the way one lives simply.

RECORD: Are you optimistic about the future of architecture?

Fehn: Architecture could always mean more than it does today. People seem always to search for space and are not satisfied. But that so many people are traveling to really enjoy a space or a room—that is encouraging. That they are seeking out to experience something grand and important.

RECORD: You've been an architect and teacher for 50 years. What do you know now that you didn't when you began?

Fehn: The importance of the story. You can't just make a construction. Before you make a room or a space around it, you must have a story. The material is your letters. You write with brick, stone, iron, and glass.

RECORD: Any temptation to slow down at this stage of your life?

Fehn: I can't when I have so much to do. The Copenhagen project [the enlargement of the National Theatre of Copenhagen] is a big job. I won't be retiring in Spain any time soon. *Julie Moline*





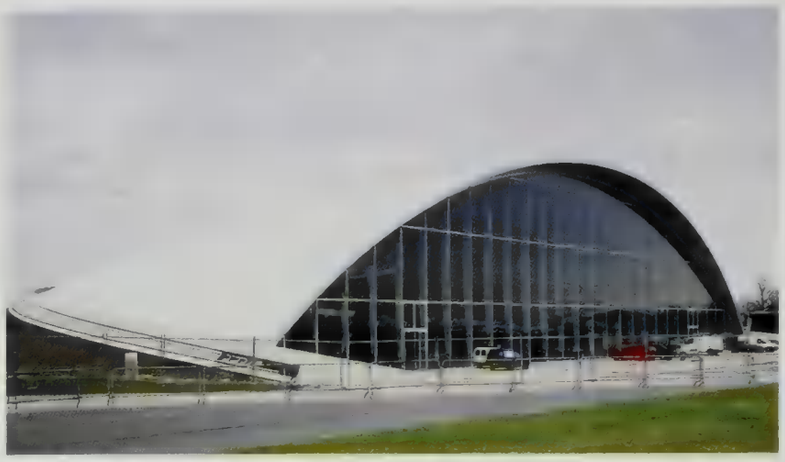
Sverre Fehn's Glacier Museum in Fjaerland, Norway, 1989-91 (left) and his Aukrust Museum at Alvdal, Norway, 1994-95 (below).

THREE FINALISTS NAMED FOR MOMA EXPANSION The architect for the expansion and renovation of the Museum of Modern Art in Manhattan will be Yoshio Taniguchi of Tokyo, Jacques Herzog and Pierre de Meuron of Basel, Switzerland, or Bernard Tschumi of New York City. They are the three finalists following a month-long sketch exercise in which 10 architects from around the world were invited to compete for the chance to design a bigger and presumably better MoMA [RECORD, March 1997, page 32].

"The architects chosen by the museum's trustees for the next stage of the competition demonstrated a remarkable sensitivity to art, a deep understanding of our mission, and a compelling vision of the future," said Museum Director Glenn D. Lowry.

The finalists are now participating in a competition leading to preliminary architectural designs for the new museum. The winner will be announced by the end of the year.

The sketches and related material of all 10 competitors are on view at the museum through July 8.



AMERICAN AIR MUSEUM IN BRITAIN TO OPEN ON AUGUST 1

Sir Norman Foster & Partners' $18-million American Air Museum on the grounds of the Imperial War Museum at Duxford Airfield near Cambridge, England, will open August 1, with Queen Elizabeth officiating at the ceremony.

Twenty-one vintage and contemporary American combat planes will be housed in the museum located on the site of a World War II U.S. Army Air Force fighter base. The building's curved form resembles the nose cone of an aircraft, its tapered end partially covered with grass. Working with structural engineers at Ove Arup & Partners and concrete specialists, the architect designed a toroidal roof form in concrete, a shape akin to the curve of a donut wedge; steel struts transfer roof loads across a glazed band, which wraps around the edge of the building, to a ring beam and inclined concrete columns.

The concrete structure not only provides room for the planes, but acts as a thermal insulator, reducing the level of dehumidification required to maintain the exhibits.

At its front end, the roof spans nearly 300 feet over a glazed and arched curtainwall, built, claim the architects, with the largest single-glazed laminated panels currently manufactured. Once inside, visitors will be able to view the aircraft up close from a raised walkway.

The museum is funded by a $10-million grant from Britain's National Heritage Lottery Fund, together with private donations. According to the American Air Museum in Britain Campaign, $1 million is still needed to complete the project.



CALIFORNIA ARCHITECTS IN "DO OR DIE" BATTLE WITH STATE ENGINEERS

"It's do or die time for the architectural profession" in the state of California, according to an AIA member spokesperson who opposes a far-reaching constitutional amendment that has qualified for the ballot in the June, 1998 election.

The amendment, initiated by the Professional Engineers in California Government (PECG) and the campaign organization Taxpayers for Efficient Government, states that "engineering, architectural, and similar services [exceeding $50,000 in state funding]...be furnished at the lowest cost to the taxpayers." It requires that contracts be awarded through a competitive bidding process, and that contractors be held fully responsible for the performance of their contracts.

By eliminating every condition but "lowest cost" in the competition for state contracts, it almost ensures that most projects will be done by the state itself, the AIA California Council (AIACC) claims. Consequently, it has joined forces with the Consulting Engineers and Land Surveyors of California (CELSOC) and the California Chamber of Commerce to form FED UP!, a coalition opposing the amendment.

To raise funds for the fight, AIACC has formed a Political Action Committee (ARC PAC). "The PECG amendment is an outrageous attack on the entire design-professional community and open competition," declared Arthur Gensler, Jr., FAIA, co-chair of the committee. He insists that "the architectural community will not stand by and watch PECG construct the largest taxpayer-funded A/E firm in the world."

ARC PAC is committed to convincing the average voter that "the lowest bid" does not guarantee public safety or the lowest final project cost, much less the quality of design that Californians of the future deserve. The other co-chair of ARC PAC, Robert L. Newsom III, AIA, senior vice president of DMJM, asserted that, "it's do or die time" and added "It is essential to our survival that we defeat this initiative."

The AIACC is focused on protecting Qualification-Based Selection (QBS) processes that currently advance design as a public value. As a constitutional amendment, the PECG measure will override the QBS statute of 1990 that mandates the selection of architects and engineers based on qualifications rather than price.

Speaking to RECORD on behalf of PECG, Bruce Banning, executive director, argues that state employees hope the Government Cost Savings and Taxpayer Protection Amendment, as it's called, will stop over-priced, no-bid contracts granted to political campaign contributors who gain "undue political influence."

Banning responded to criticism about the "broad sweep" of the measure which appears to impact an extremely large field of projects by saying that he does not expect the measure to affect such a broad field. "Currently, 80 percent of engineering design work is executed by state employees, while 20 percent is contracted out. We are opening the 80 percent to outside contractors if they can compete; likewise they may lose their current 20 percent if they cannot cut costs," he explained.

To criticism of a "stacked deck" formula that appears to eliminate overhead expenses from the calculation of state design costs when entering competitive bidding, he replied that "comparable costs are fairly measured." He further invited private sector design professionals to propose amendments to the measure to improve its effectiveness.

ARC PAC hopes to raise more than $1 million for FED UP! to fight the amendment. There is a possibility that the election could come as soon as November, 1997.

Lian Hurst Mann

COLUMBIA STUDENTS WORK WITH HARLEM ACTIVISTS TO DESIGN ARTS CORRIDOR

Artists and activists in East Harlem, one of New York City's poorest and most beleaguered neighborhoods, have tapped into the design talents of students at Columbia University's Graduate Schools of Architecture, Planning, and Preservation to help them develop their vision of an urban arts corridor.

The grassroots effort to shape development in "El Barrio," a predominantly Latino and African-American neighborhood, using arts-related activities and institutions is led by two artists: Fernando Salicrup, executive director of the Puerto Rican Workshop, and by Algernon Miller, a member of the Harlem Gateway Committee. Both men and their community groups are dedicated to the propagation of local art, culture, and education in the urban environment.

The southern tip of the area chosen for the arts corridor has already begun to change under Salicrup's 25-year-old campaign: A gallery and artists' housing has opened, several galleries are in the works, and a major building previously slated to become a shelter for homeless men will open soon as a center for the Latino arts. "We want to show people that this can work," says Salicrup. "We need the leadership to come from people who are here."

Salicrup and Miller envision the proposed arts corridor as an extension of Fifth Avenue's "Museum Mile" to the north, adding museums and monuments celebrating technology, Latino culture, jazz music, and the civil rights struggle.



108th St. and Park Ave. Community Plaza by student Ariel Bromberg

In their designs, several of the Columbia students have attempted to break down the scale of the area's public housing towers and massive urban blocks by creating raised, private outdoor plazas and making new pathways through and around buildings. One of Salicrup and Miller's favorite projects was created by a student who sought to link the Latino and African-American cultures in celebration, creating a canopy-enclosed parade route through the neighborhoods along Central Park.

Grahame Shane, adjunct professor of architecture at Columbia, says the optimistic and energetic vision of the community artists inspired his graduate students. "What we did was to make it possible to visualize their concept built out along the corridor," explained Shane. "They will continue to take it forward." *Virginia Kent Dorris*

U. OF HOUSTON ARCHITECTURE SCHOOL GETS $7 MILLION DONATION **Gerald Hines, founder and chairman of Hines, the international real estate firm, has donated $7 million to the College of Architecture at the University of Houston.**

One of the largest contributions ever to be awarded to a U.S. architecture school, the developer's gift will provide a permanent endowment for the college, fund programs and fellowships, and increase resources for research and design exploration. It will also help to fund interdisciplinary urban design studios, where innovative ideas for public spaces, institutional facilities, housing, and transportation will be investigated.

"This gift," said Dean Bruce Webb of the recently renamed Gerald D. Hines College of Architecture, "will help us become one of the preeminent architectural schools in the nation."

ARCHITECTURAL PRESS ROUNDUP

LIFE, NOT DEATH

The New York Times, April 10, 1997 Does architecture make a difference? Thirty-six homeless AIDS patients will soon be moving into new 400-sq-ft studio apartments with private baths, sparkling appliances, and furniture and amenities donated by the likes of Ethan Allen and Ralph Lauren. The light-filled, six-story, 33,458-sq-ft structure on the Lower East Side was designed by architect Alan Wanzenberg of Johnson/Wanzenberg. His partner, Jed Johnson, who died in the crash of TWA Flight 800 last July, designed the interiors. As *Times* writer Julie V. Iovine explains, the facility is "something new: a daytime treatment center with fully furnished efficiency apartments that offer round-the-clock supervision, along with medical care." The nonprofit organization behind the project is Housing Works. A woman, seeing her new home for the first time, remarked, "I've lived in 18 different places and they all reminded me of jail. Here it feels like life, not death."

BEEFING IN BERLIN

The Wall Street Journal, March 21, 1997 American architects in Berlin are not a happy lot. Despite an abundance of work, they are chafing because of strict building rules imposed by the city's conservative politicians. As a result, they say, creativity has been severely restricted. Berlin is a "missed opportunity," believes Daniel Libeskind, architect of the city's new Jewish Museum. "Completely uninteresting," says I.M. Pei of the $2.5 billion worth of buildings at Potsdamer Platz. Frank Gehry comments, "Post-War Berlin is quite impressive. Post-Wall Berlin is not."

GO WEST YOUNG ARCHITECT

The Los Angeles Times, March 27, 1997 Architectural firms are "scrambling for experienced designers and raiding rivals for hard-to-find talent," writes columnist Jesus Sanchez. Adding to this competitive frenzy are the Hollywood studios and high-tech firms. The movie companies "will pay whatever they have to pay to get people to work for them," says David Brotman of RTKL Associates. As for the techie firms, "they pay top dollar for architects with valuable computer skills," says Sanchez.

GO EAST YOUNG ARCHITECT

Platform, The University of Texas at Austin, Winter 1996-97 According to Jeffrey Utterback, class of '86, Poland is not a bad place to be if you are a young architect with get-up-and-go. Utterback, who has made a career in Poland, says: "Architects here have been treated as artists and sort of god-like. The problem is that the architects believe that they are god-like and are in turn not responsible service providers."

HUXTABLE BOOK GETS PANNED

The New York Times Book Review, April 6, 1997 Revered architecture critic Ada Louise Huxtable's book *The Unreal America: Architecture and Illusion* got a bad review from critic Witold Rybczynski. After paying his due by reminding readers of Huxtable's considerable contribution to the historic preservation movement, he calls her book "poorly argued" and "brimming with inconsistencies." And that's just the warm-up. Rybczynski goes on: "Make-believe has always played a role in our surroundings and the relationship between reality and illusion has always been blurred; Pennsylvania Station [a building Huxtable fought in vain to save] was simultaneously a surrogate Baths of Caracalla and a real place. She is more interested in using words like 'unreal' and 'nostalgic' to deprecate architects whose work she dislikes."



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20 DESIGNS WIN 1996 GSA BIENNIAL DESIGN AWARDS

Kohn Pedersen Fox Associates of New York City was the winner of two U.S. General Services Administration (GSA) 1996 biennial design awards. In all, 20 projects of 140 submitted to the GSA were recognized for excellence in the categories of architecture, art, engineering, graphic design, landscape architecture, interior design, historic preservation, and building designs in progress. The winners were selected by a nine-member jury, which was chaired by architect Cesar Pelli of Cesar Pelli & Associates, New Haven, Conn.



Receiving honor awards were:

- Kohn Pedersen Fox Associates for the design of the U.S. Courthouse at Foley Square, New York City.
- Diana K. Moore for the sculpture "Justice" at the Martin Luther King, Jr. Federal Courthouse, Newark, N.J.
- Dworsky Associates for the design of the U.S. Port of Entry, Calexico, Calif.
- Pei Cobb Freed & Partners for the design in progress for the U.S. Courthouse in Boston.
- Hardy Holzman Pfeiffer Associates for the design in progress for the Evo A. DeConcini Federal Building and U.S. Courthouse, Tucson, Ariz.
- Waggoner & Ball Architects for historic preservation of the U.S. Customs House, New Orleans.
- Skidmore, Owings & Merrill for historic preservation of the U.S. Court of Appeals, San Francisco.

The projects winning citations were:

- Clyde Lynds for the sculpture "America Song" at the Federal Office Building, New York City.
- John Valadez for the mural "A Day in El Paso del Norte" at the Federal Building, El Paso, Texas.
- Douglas Hollis for the landscape-sculpture "Watersongs" at the Vincent E. McKelvey Federal Building, Menlo Park, Calif.
- Leers Weinzapfel Associates Architects, Inc. for the Harold D. Donohue Federal Building and U.S. Courthouse, Worcester, Mass.
- Kohn Pedersen Fox Associates for design of the U.S. Courthouse, Minneapolis, Minn.
- Kaplan McLaughlin Diaz for the Federal Building, Oakland, Calif.
- MBT Architecture for design of the Vincent E. McKelvey Federal Building, Menlo Park, Calif.
- Martha Schwartz, Inc., for landscape design at the U.S. Courthouse, Minneapolis.
- Quinn Evans/Architects for restoration of the roof and upper facades of the Old Executive Office Building, Washington, D.C.
- John Milner Associates, Inc., for conservation and restoration of "The Expanding Universe" sculptural fountain at the State Department Building, Washington, D.C.
- Southern California Edison for an energy conservation project at the Chet Holifield Federal Building, Laguna Niguel, Calif.
- RAW Architecture for interior design of the Little Aviators Child Care Center at the Hawthorne Federal Building, Lawndale, Calif.
- Joel Boches and David Hooper of GSA's Office of Graphic Design for design of Art-in-Architecture program brochures, for the U.S. General Services Administration, Washington, D.C.



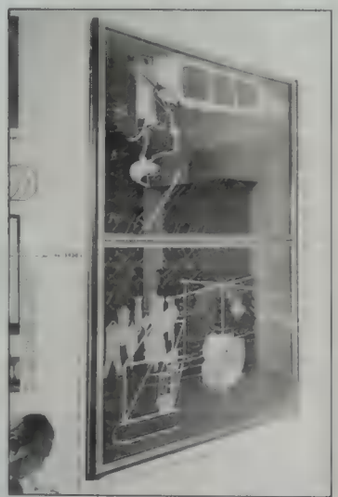
The biennial awards program was conceived by GSA in 1990 to encourage and recognize innovation in federal buildings and to honor noteworthy achievements in preservation and renovation of historic structures.

GSA Honor Award winners include The U.S. Courthouse, Foley Square, New York City, by Kohn, Pedersen Fox Associates (left), and the U.S. Court of Appeals, San Francisco, California, by Skidmore, Owings & Merrill (above).

REVIEW OF DUCHAMP MASTERPIECE IN RECORD 60 YEARS AGO

The recent publication of Calvin Tomkins's *Duchamp: A Biography* (Henry Holt and Company, 1996), credits ARCHITECTURAL RECORD with helping to establish the reputation of the influential Dadaist artist Marcel Duchamp in an article 60 years ago this month.

Written by Viennese-born architect/sculptor Frederick Kiesler, the 1937 review of Duchamp's "The Bride Stripped Bare by Her Bachelors, Even (The Large Glass)" of 1915-23, distills the tectonic nature of the glass-and-wire work through a description of the artist's conceptual process and construction technique. Duchamp's "structural painting," as he called it, is about joinery and the use of transparency and opacity to create "a spatial balance."



Kiesler deemed the glass work "nothing short of being the masterpiece of the first quarter of 20th-century painting." In his book, Tomkins claims Duchamp "had a more lasting and far-reaching effect on the art of our time than either Picasso or Matisse." Of Kiesler's contribution in RECORD, the author says, it is the "first important essay on 'The Glass' in English."

Abby Bussel

RAINFOREST ACTION NETWORK PETITIONS ARCHITECTS TO SAVE REDWOOD FORESTS

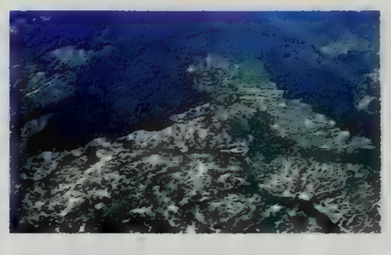
In a bid to secure protection for ancient redwood forests, the Rainforest Action Network (RAN) is urging architects, builders, and consumers to boycott old-growth redwood lumber. "This is a last resort for citizens to kill the market before the loggers kill the old growth," said RAN campaign director Christopher Hatch.



The group sent out a mailing to 1,200 California architects representing nearly 1,000 firms, plus contractors, interior designers, and lumberyards nationwide, asking recipients to sign a pledge card asserting that they won't buy old-growth redwood products. RAN also took out a full-page advertisement in *The New York Times* asserting, "Of all the uses of an ancient redwood, it still works best as a tree."

Within six weeks, pledges were returned by 120 architects and 60 landscape architects, 400 building professionals, and more than 1,000 "concerned citizens," according to RAN spokesperson Celia Alario.

Besides RAN, the old-growth redwood campaign is being supported by a coalition of environmental groups, including Sierra Club, Greenpeace U.S.A., and the San Francisco Bay Area Coalition for Headwaters, a group seeking to save The Headwaters Forest, a 3,000-acre privately held grove of virgin redwood.



The view after thousands of old-growth redwoods become lumber.

DESIGNERS AT MONTEREY CONFERENCE IMAGINE CITIES OF THE FUTURE **Counting 1000 days until the year 2000, futurists at the thirteenth Monterey Design Conference challenged fellow architects to imagine their role in designing the future. At the heart of the spirited weekend of debate were these questions: What is the future of our urban environment and who will design it?**

The focal debate pitted visions of cultural diversity and democratic action against the tradition-bound stance of New Urbanism. John Kaliski, AIA, envisioned a practice of "city design" that embraces "the complexity of everyday life," celebrates the diversity of value systems, and engages public conflict in the political process that ultimately designs the physical environment. New Urbanist Peter Katz predicted a popular focus on stability and common cultural values aimed at "true, authentic life," proposing that architects may be disappointed to find that future cities will look like past cities.

Barton Phelps, FAIA, harmonized the divergent voices in a rejoinder to reconceptualize architecture as part of the urban landscape, a physical world defined more by measures of time than place, and acted upon by many designers, some of whom will be architects. *Lian Hurst Mann*

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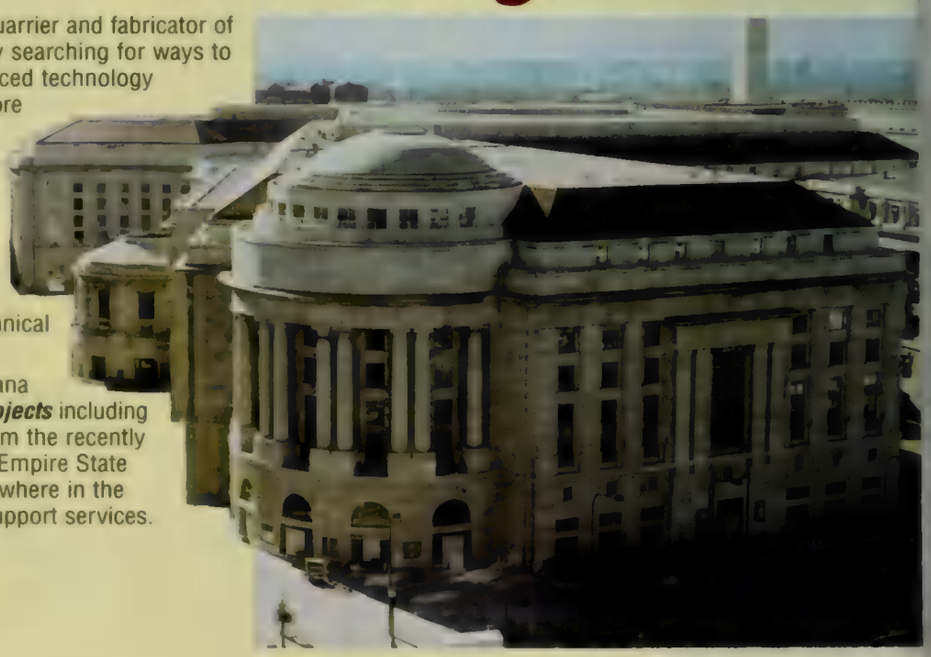
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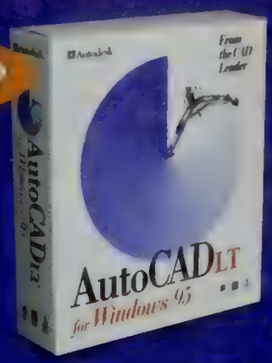
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DESIGN COMPETITIONS TO COMMEMORATE AFRICAN BURIAL SITE IN MANHATTAN

The U.S. General Services Administration (GSA) is sponsoring two separate national design competitions to commemorate the site of the African Burial Ground, an 18th-century cemetery in lower Manhattan discovered by archeologists in 1991. The first competition is for a commission to design an outdoor memorial at the site. The second is for the development of a nearby Interpretive Center.

The African Burial Ground, a National Historic Landmark, was discovered at the planned site of a federal office building. About 400 tombs were removed and the human remains and artifacts sent for study to Howard University in Washington, D.C. Both slaves and freemen were buried on the site between the years 1712 and 1792. When the examinations are concluded, the remains will be reinterred on the burial site.

For the first competition, GSA is seeking to commission an individual or team to develop, design, fabricate, and install a memorial that will acknowledge the African Burial Ground, "as a sacred place for commemorative and contemplative activities," according to Margaret King Jorde, project executive. The Interpretive Center will be located at a nearby federal office building, and offer exhibits based on the anthropological research underway at Howard University.

A pre-bid conference is being organized "to facilitate the partnering of design professionals who possess an expertise, but may be in search of partnering with other professionals in order to fulfill the necessary project requirements," said Jorde. For information on the competitions, contact her office at 212/264-8164, or GSA Public Affairs at 212/264-0424.

COUNT THE WINDOWS **"Kuala Lumpur today, tomorrow the world," according to Jim Belmont, president of Sol-R-Veil, the shade maker. Considering that the company landed the Petronas Towers contract for $10 million, his hubris is understandable. In total, there are 32,000 4-ft by 12 1/2-ft exterior windows and 32,000 interior sunscreen units to cover them, for the two 88-story towers, which at 1,483 ft are the tallest buildings in the world. Two-and-a-half year shading project will entail 24,000 hours of fabrication work and 1.5 million hours of labor for installation. Sol-R-Veil created a fine weave fiberglass of three different colors in a diagonal direction, a combination of light, dark, and intermediate weave, to cover the 1/2-in.-thick green glass. The new textile offers a shading coefficient of 0.41. After all that work, though, the shades are intended to be "imperceptible" from outside.**





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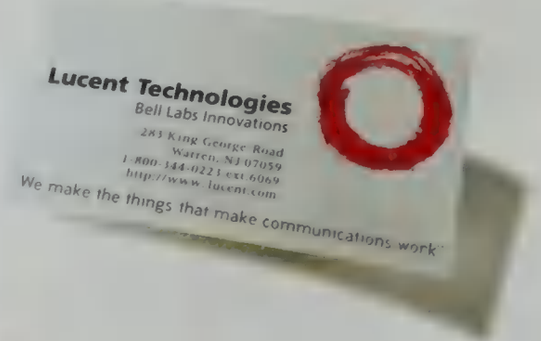
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CIRCLE 19 ON INQUIRY CARD

NEWS BRIEFS

Massive Hong Kong project to Pelli Cesar Pelli & Associates of New Haven, Connecticut, has been selected to design a 3.2-million-sq-ft mass transit hub in Hong Kong. The mixed-use complex will integrate the city's central subway station with a new air terminal station for express service to Foster & Partners's new Chek Lap Kok Airport. Phase one will include a 1,312-ft-tall office tower, a 689-ft-tall tower, and a four-story retail podium with a public roof garden. A hotel and apartments are to be added in subsequent phases. The construction schedule and the cost have not been finalized.

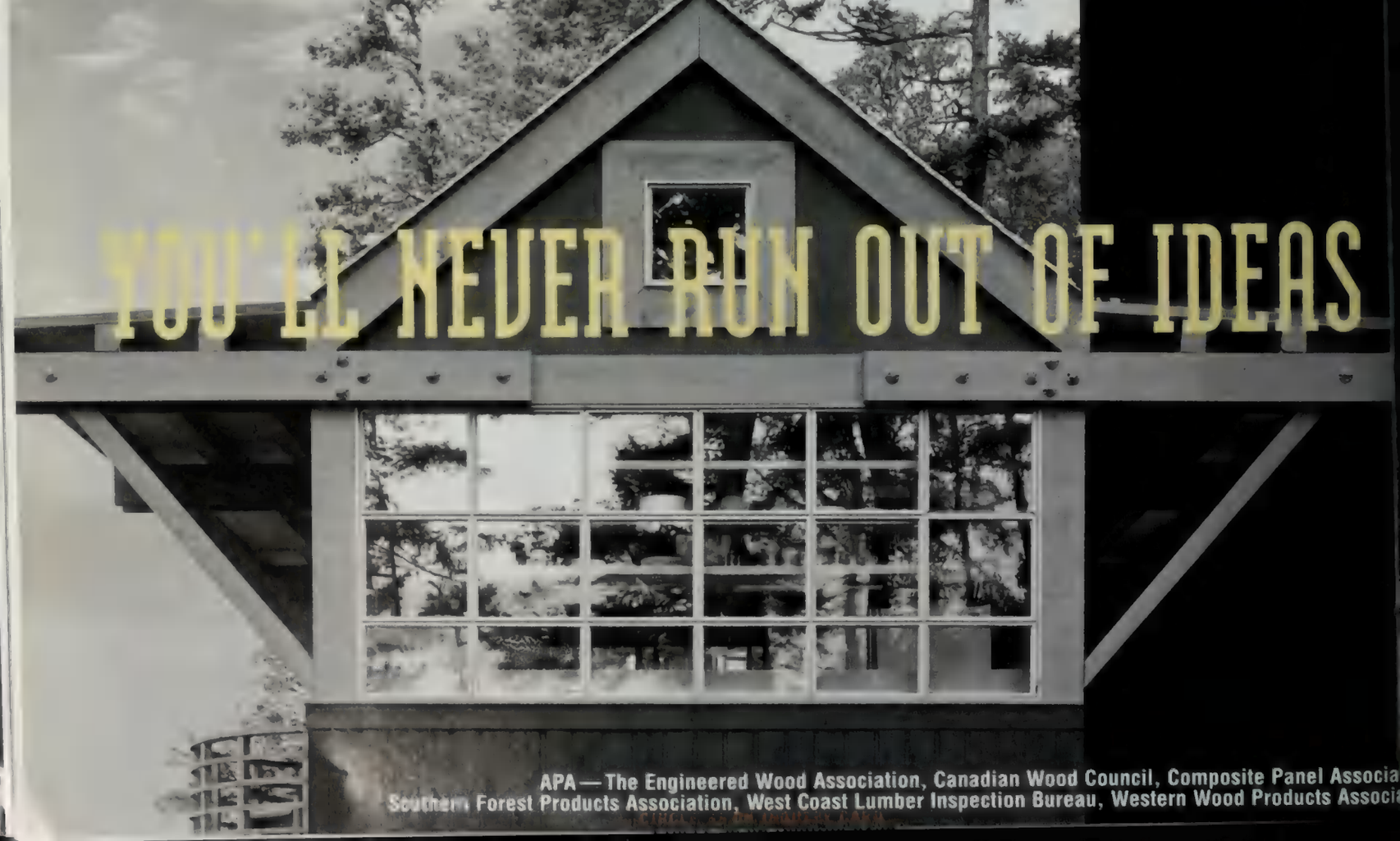
New Center for the Built Environment (CBE) A new industry/university cooperative research facility, the Center for the Built Environment's mission "is to improve the design and operation of buildings to assure high performance and quality for their tenants and owners." Located on the campus of the University of California at Berkeley, the center was established by the university with the National Science Foundation and more than 10 industry partners from commercial, government, design, and construction sectors. CBE will, among other issues, address new technologies for increasing workplace productivity and the reduction of energy use, indoor air quality research, and standards and codes affecting the industry.

Architect for new Philadelphia arts center announced From a field of four, Rafael Viñoly Architects, New York City, with The Hillier Group, Philadelphia, was awarded the commission to design the $203-million Regional Performing Arts Center in Philadelphia. The project will combine the city's existing Academy of Music with a new concert hall for the Philadelphia Orchestra and a multi-use theater, both housed in a new structure. Other finalists were Barton Myers Associates, Inc., Beverly Hills, California; Pei Cobb Freed & Partners, New York City; and Cesar Pelli & Associates New Haven, Connecticut. The center is to be funded by public and private sources.

AIA's first leadership Institute Twenty-three architects gathered in Washington, D.C., recently to attend the AIA's first Leadership Institute. The four-day Institute was established to increase practitioners' involvement and effectiveness in the community-at-large. Through a series of presentations and work sessions, the participants addressed the role of the architect in national politics, business, local government, and community group



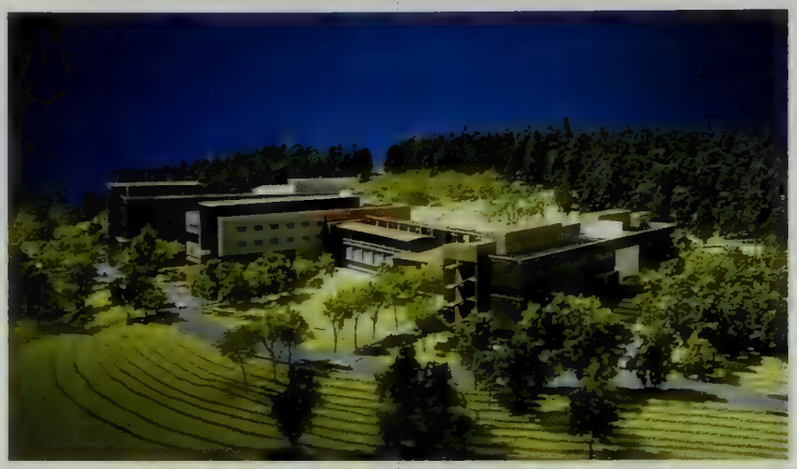
Hong Kong with new 1,312-ft tower planned by Cesar Pelli inserted.



More New Urbanism in Turkey A 1,150-acre site, located 40 minutes west of Istanbul, is slated to become Turkey's largest neo-traditional community, according to its designer, CHK Architects and Planners of Silver Spring, Maryland. Over the next 20 years, developer Korkmaz Yigit and Gultas, A.S., intends to construct 14,000 residences, four-million sq ft of office space, 90,000 sq ft of retail space, and parks and open spaces. The site plan weaves existing squatter settlements into the new town, which is known as Ispartakule.

Paris Prize winners named Thomas T. H. Pen, a Syracuse University graduate now working with Michael Graves Architects in New York City, is the winner of the 1996 Paris Prize in Public Architecture, an annual competition sponsored by the Van Alen Institute of New York City and open to recent and prospective graduates of U.S. architecture programs. Ran Oron, a graduate of Cooper Union now working in New York City received the second place award, and Tracey E. Ford, who is completing her final year at Georgia Tech University, took third place. The competition brief called for the design of a temporary information center for a site in downtown Manhattan.

AIA government affairs award to Arizona chapter, again For the second consecutive year, AIA Arizona has been honored with the AIA Government Affairs Award, a national award given annually to acknowledge efforts that raise architects' level of involvement in practice-related government issues. In 1996, the Arizona chapter coordinated efforts to support its state's Contract Indemnification Bill, which deletes the "hold harmless and indemnification" clause from architectural and engineering contracts with public agencies. The bill, which goes into effect June 1998, ensures that practitioners will be responsible only for their own negligence—the only category of negligence for which they can acquire insurance.



Plan for phase one of a new joint campus at Bothell, Washington.

New dual campus for Bothell, Washington A new campus bringing together two commuter-oriented Washington State institutions—the University of Washington and Cascadia Community College Collocation Campus—is being planned for the town of Bothell by Mahlum & Nordfors McKinley Gordon, Seattle, in association with Simon Martin-Vegue Winkelstein Moris, San Francisco, and Cardwell/Thomas & Associates of Seattle. The master plan calls for a 1.2-million-sq-ft campus that can accommodate 10,000 students. Phase one, for 2,000 students, has 255,000 sq ft in three major buildings. Estimated cost of the entire project is $71.4 million. ■

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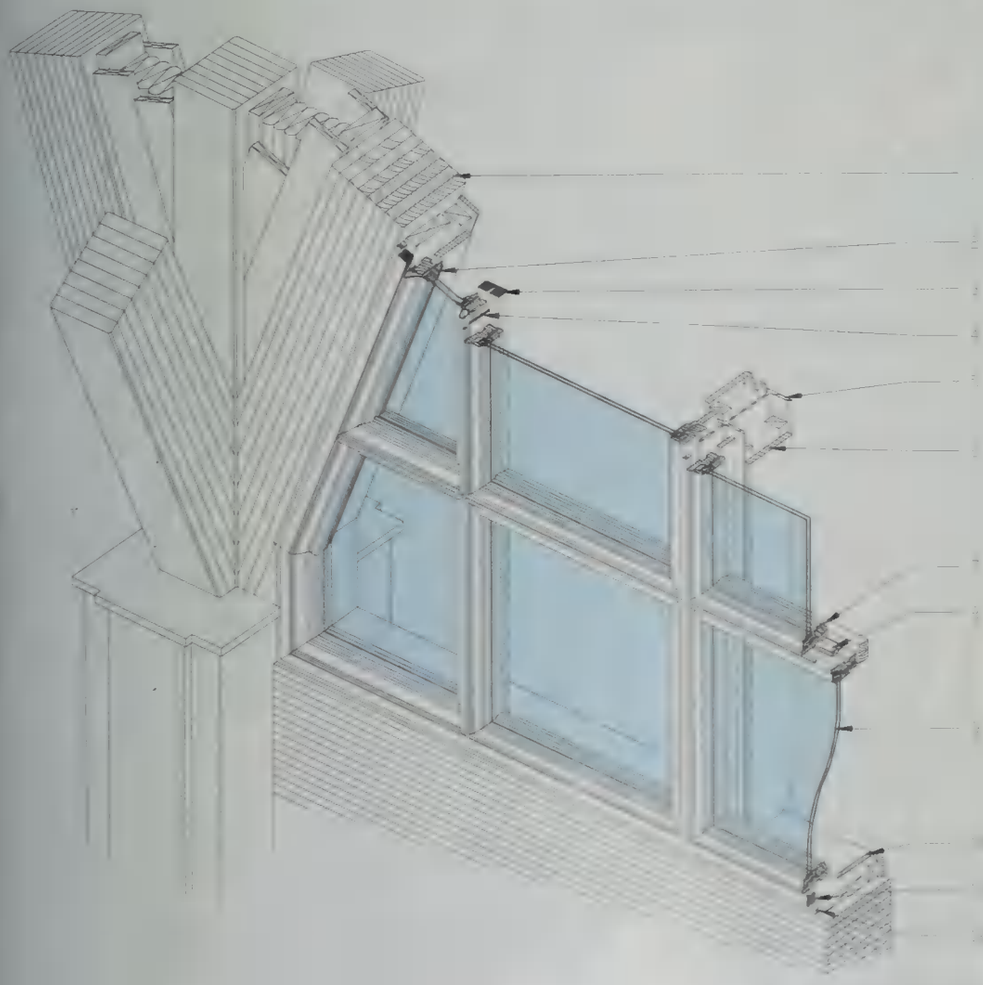


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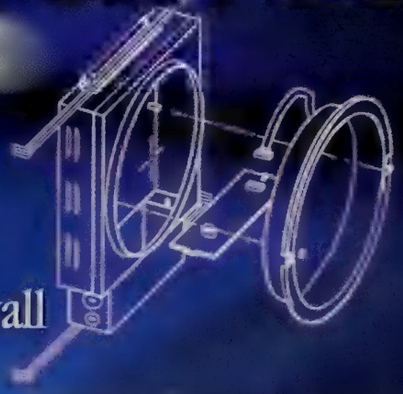
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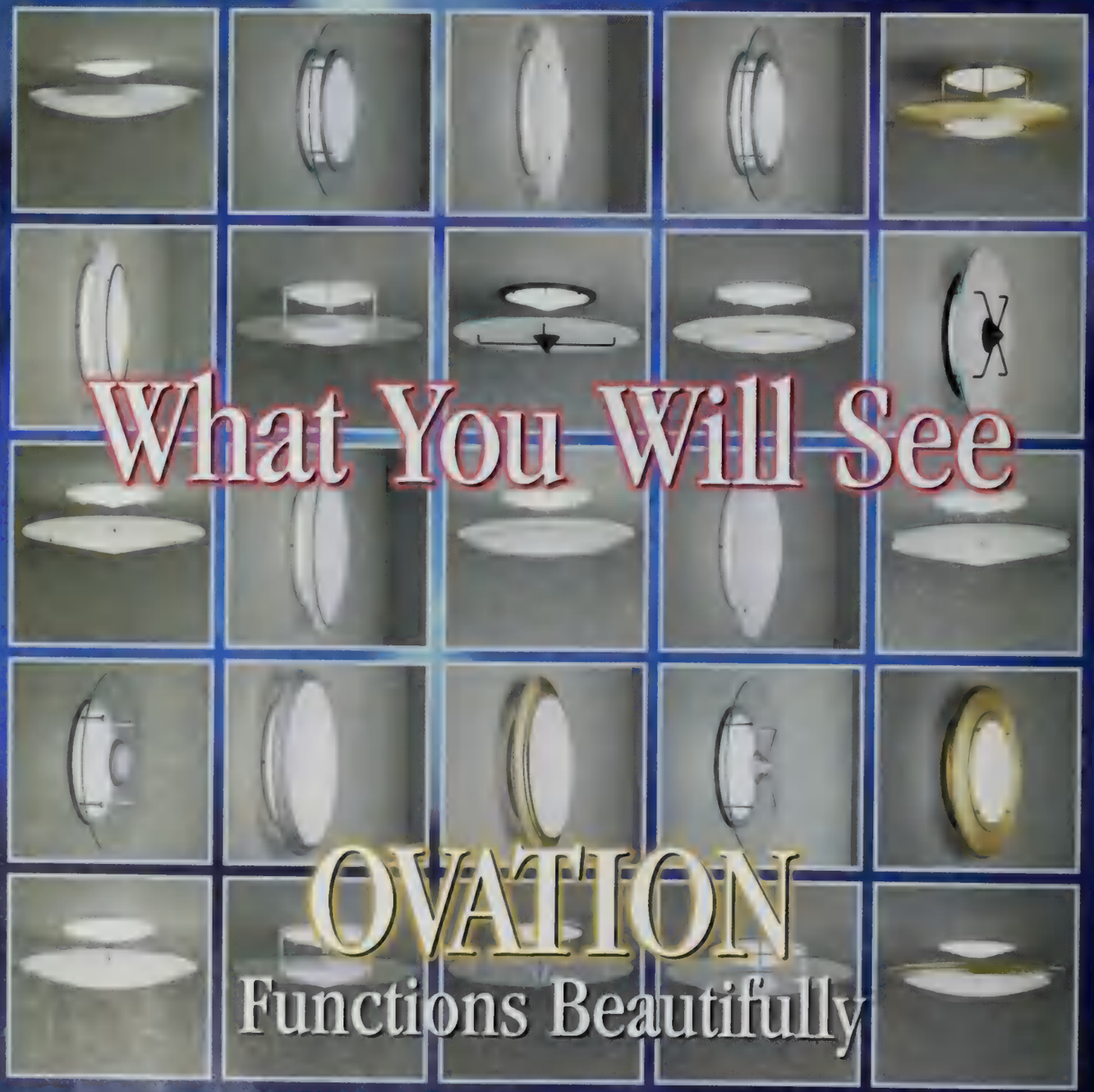
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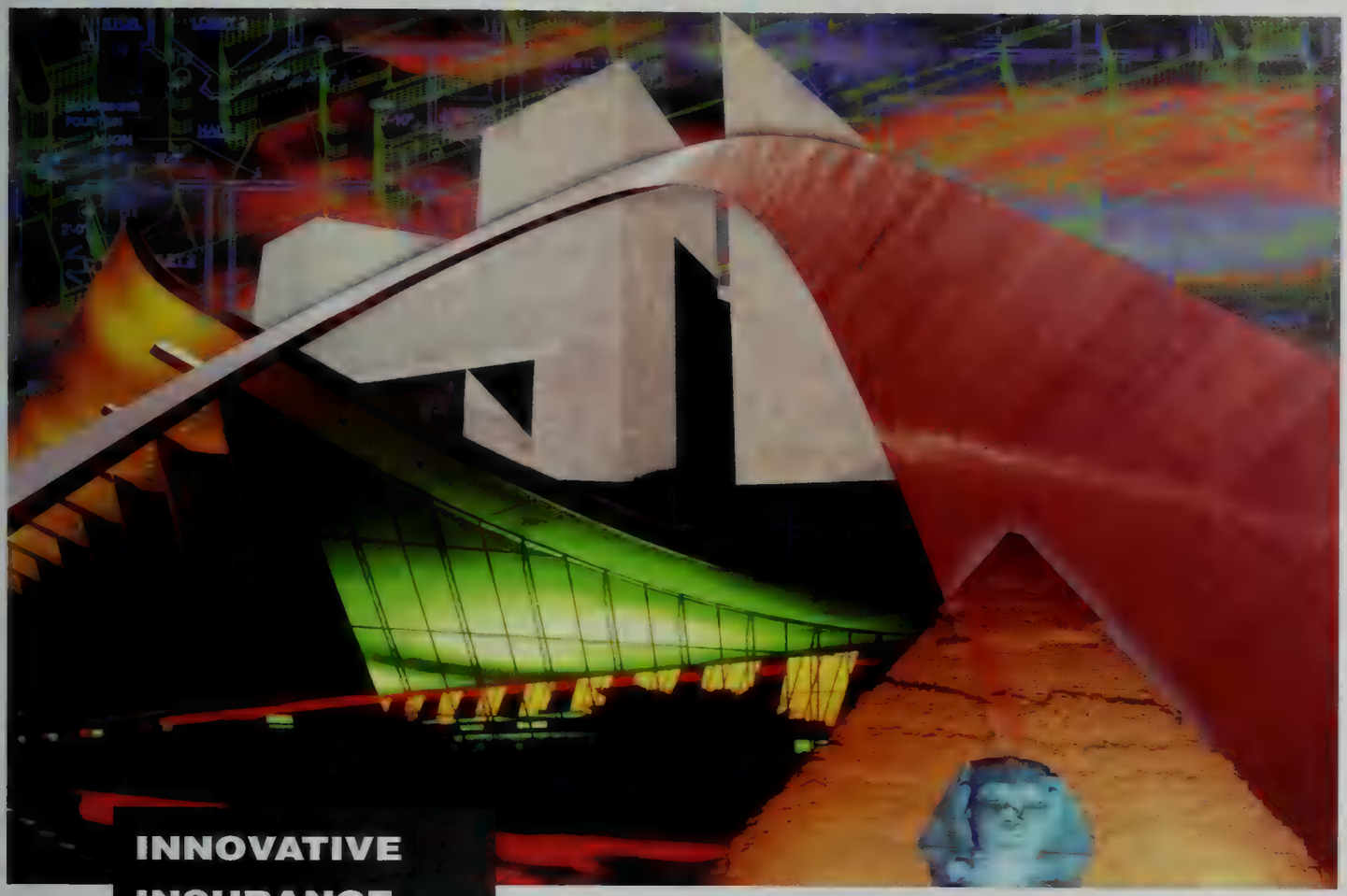
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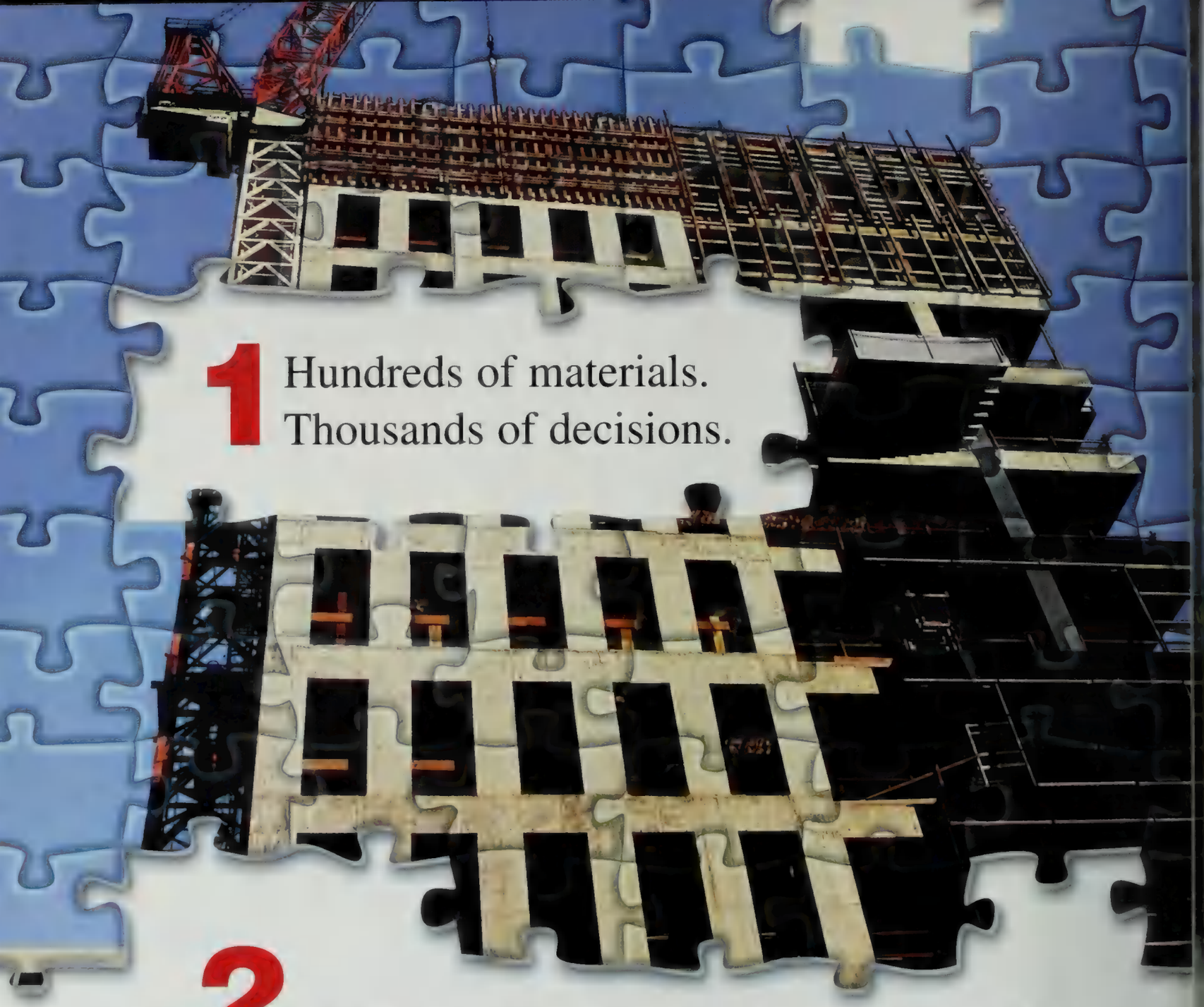
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interiors

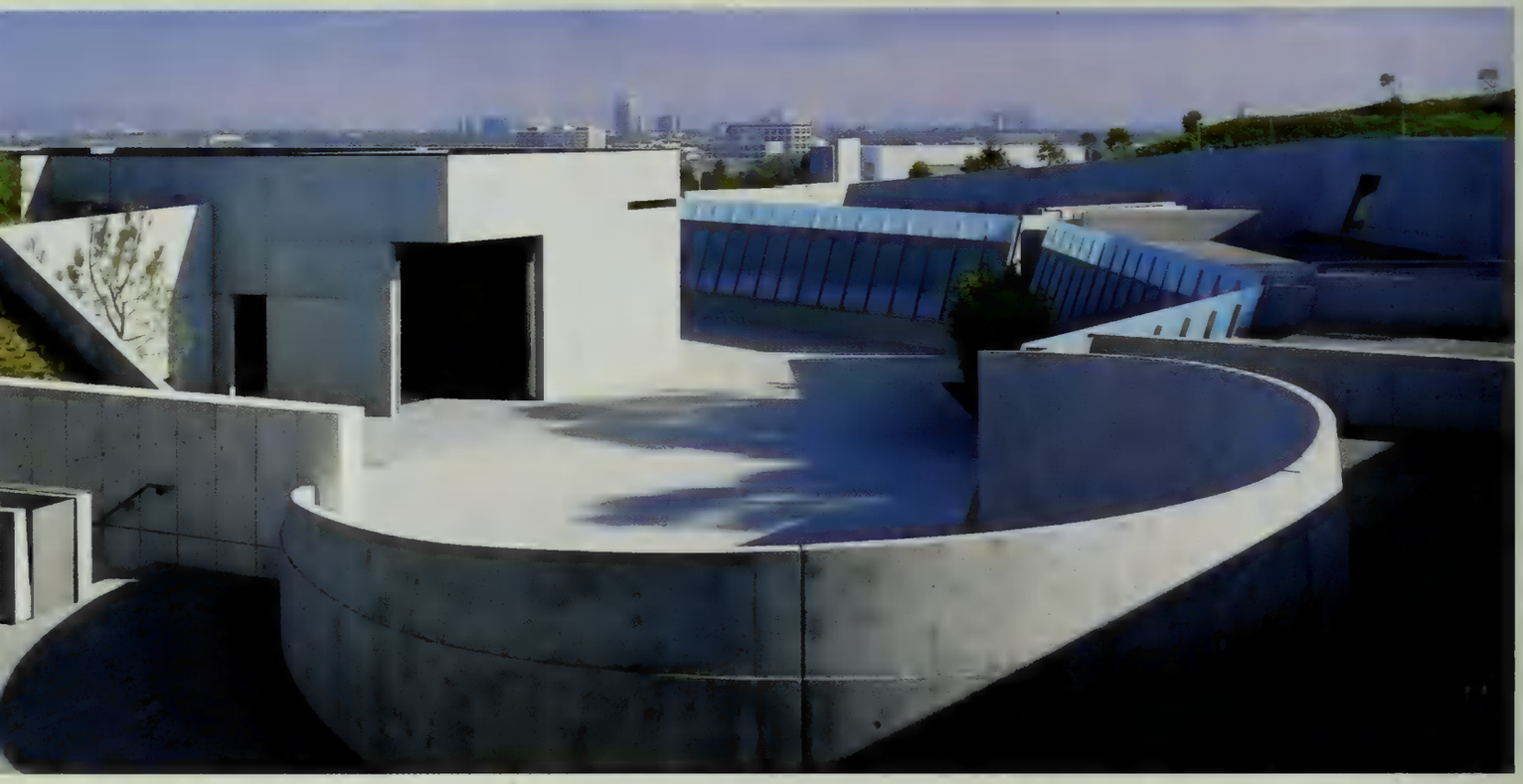
urban design

25 year award

1997 Honors & Awards

If there is a prevailing "ism" in architecture today, it would be hard to detect in this year's AIA Honor Awards. It's not just today's lack of a prevailing style or esthetic; the judges followed recent AIA guidelines, choosing to reflect a less-elite client makeup and focus more on community concerns. The awarded projects indeed represent a wide range, but there remains considerable debate about whether this is the best path for this most-visible of American design-awards programs. Some argue the approach risks diluting the value and stature of the awards; others say it is still too insular an approach. This year, ARCHITECTURAL RECORD *presents the awards in the context of this debate. An interview with architecture jury chair Malcolm Holzman sheds light on how this year's winners were picked. The issues AIA juries have regarded as important have changed over time, Margaret McCurry shows in her commentary. Michael Sorkin views the choices as not setting a high-enough standard, and critic David Dillon comments on the public role of architecture. While these are hardly the final nor the definitive views, they do widen the debate about what architecture's agenda should be as the profession continues to define for itself a more essential cultural and economic role.* James S. Russell

Neurosciences Institute, Tod Williams and Billie Tsien, and Associates; Joseph Wong Design Associates



1

1. Architecture *(page 70)*
Memorial Hall, Venturi, Scott Brown and Associates; Bruner/Cott Associates; Robert G. Neiley. *The Neurosciences Institute*, Tod Williams, Billie Tsien and Associates; Joseph Wong Design Associates. *Paul Cummins Library* and *Schulman Residence*, Steven Ehrlich Architects. *Bellevue Regional Library*, Zimmer Gunsul Frasca Partnership. *Nancy Lee & Perry R. Bass Center for Molecular & Structural Biology*, Kallmann McKinnell & Wood Architects. *Boyd Lighting Headquarters*, Brayton & Hughes Design Studio. *Guest House*, Bohlin Cywinski Jackson/James Cutler Architects. *Manville Hall Student Apartments*, David Baker Associates; Crosby Helmich Architects. *Laureola Oaks*, Seidel/Holzman. *Arlington National Cemetery Facility Maintenance Complex*, KressCox Associates. *Lasater Residence*, Lake/Flato Architects. *Delta & Pinelands Company Guest Houses*, Walter Chatham, AIA.

2. Interiors *(page 8...)*
New Victory Theater, Hardy Holzman Pfeiffer Associates. *Dillingham Hall*, Hardy Holzman Pfeiffer Associates. *Henri Beaufour Institute*, Williams & Dynerman Architects. *Tokyo International Forum*, Rafael Viñoly Architects. *Root Residence*, Pasannella + Klein Stolzman + Berg Architects. *Bow Truss Studios*, Steven Ehrlich Architects. *Bottega Veneta*, Francois deMenil, Architect; Bergmeyer Associates. *Praxair Distribution*, Herbert Lewis Kruse Blunck Architecture. *Delano Hotel*, Phillipe Starck, Designer; PMG Architects. *Meyocks and Priebe Advertising*, Herbert Lewis Kruse Blunck Architecture.

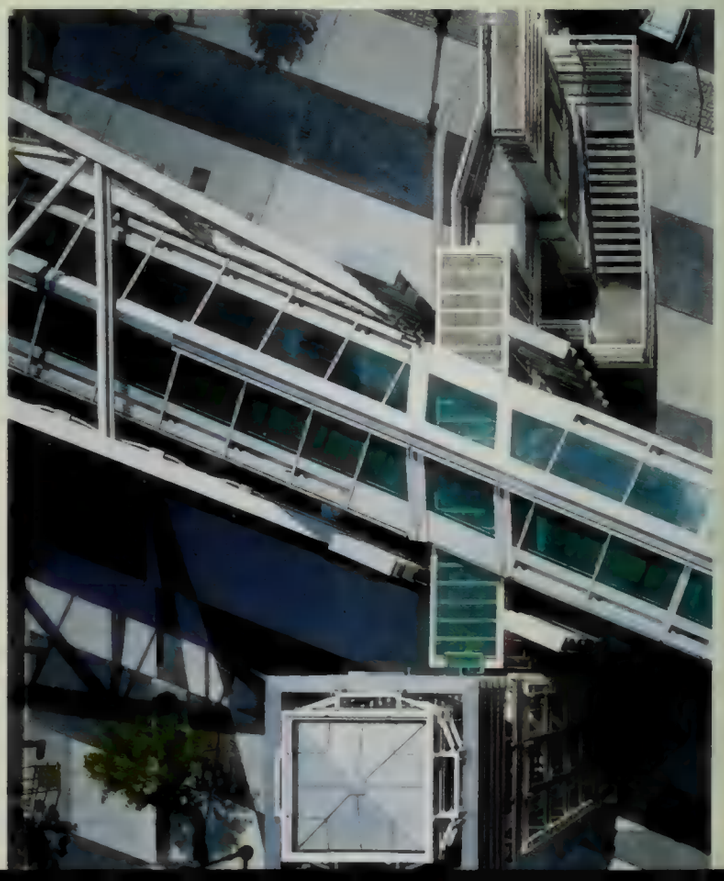
3. Urban Design *(page 86)*
Parco San Giuliano, Comunitas. *Lafayette Courts*, CHK Architects and Planners. *Kakaako Makai Area Development Strategy*, ELS/Elbasani & Logan Architects. *Tribeca Bridge*, Skidmore, Owings & Merrill. *Saigon South Master Plan*, Skidmore, Owings & Merrill

4. Firm Award *(page 90)*
R.M. Kliment and Frances Halsband, Architects

5. 25 Year Award *(page 94)*
Exeter Library, Louis I. Kahn, Architect

3

Tribeca Bridge, Skidmore, Owings & Merrill

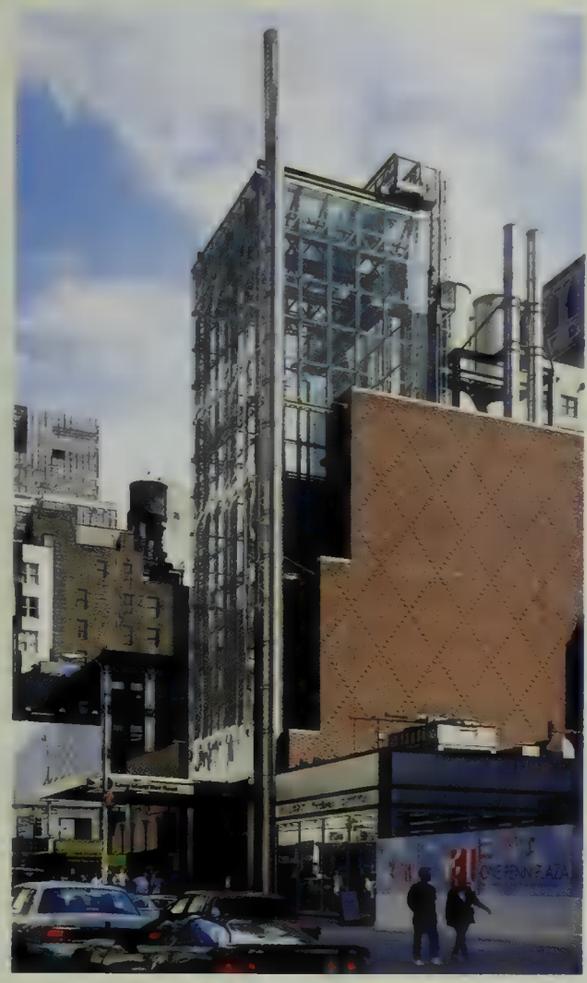




Exeter Library, Louis I. Kahn, Architect

5

4



Long Island Railroad entrance, R.M. Kliment and Frances Halsband, Architects

Jurors

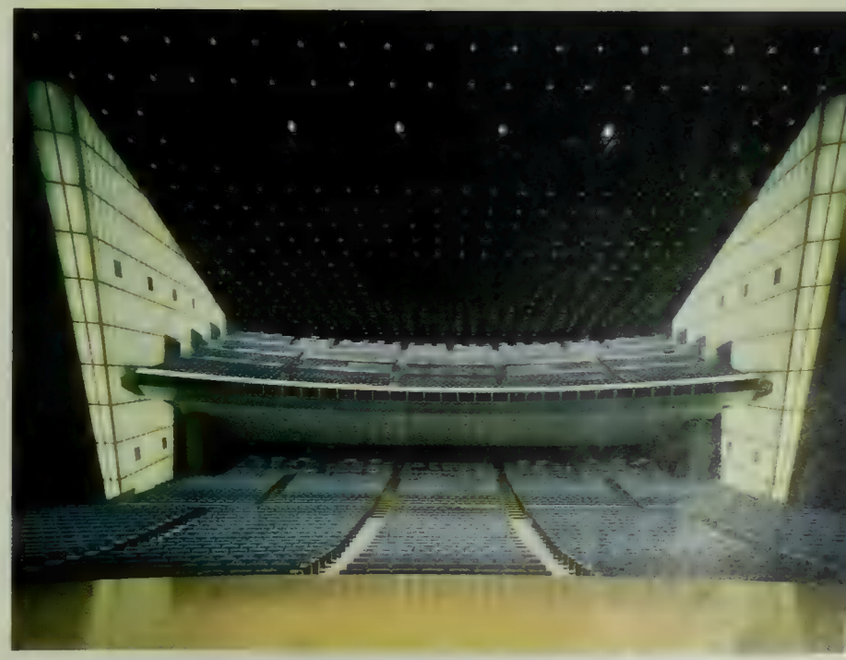
Architecture/25 Year Award Malcolm Holzman, FAIA (chair), Hardy Holzman Pfeiffer; F. Michael Ayles, Assoc. AIA, Antinozzi Associates, Stratford Conn.; Dana Cuff, The Getty Research Center, Santa Monica; Joan E. Goody, FAIA, Goody, Clancy & Associates, Boston; Susan Henshaw Jones, President and Director, National Building Museum, Washington, D.C.; Aaron E. Johnson, Howard University, Washington, D.C.; Robert L. Thompson, Thompson Vaivoda and Associates, Portland, Ore.; Anne G. Tyng, FAIA, Philadelphia; Robert "Buzz" Yudell, FAIA, Moore Ruble Yudell, Santa Monica, Calif.

Interiors Margaret McCurry, FAIA (chair), Tigerman McCurry Architects, Chicago; James R. Biber, AIA, Pentagram Architectural Services, New York City; Morrison Cousins, Vice President Design, Tupperware, Orlando; Susan Grant Lewin, Susan Grant Lewin Associates, New York City; Toshiko Mori, AIA, Graduate School of Design, Harvard University, Cambridge, Mass.

Urban Design Robert M. Beckley, FAIA (chair), College of Architecture & Urban Planning, University of Michigan, Ann Arbor; Thomas R. Aidala, FAIA, San Francisco; Harvey H. Kaiser, AIA, Syracuse, N. Y.; Patricia Zingsheim, AIA, City of Des Moines, Iowa

Firm Award David Childs, FAIA (chair), Skidmore, Owings & Merrill, New York City; William Turnbull, Jr., FAIA, William Turnbull Associates, San Francisco; Ed Uhlir, FAIA, Chicago; Frank Benest, city manager, Brea, Calif.; Darrell A. Fitzgerald, FAIA, Houston, Tex.; Melanie Hartwig-Davis, Assoc. AIA, Cheverly, Md.; Mildred Friedman, Hon. AIA, New York City

Tokyo International Forum, Rafael Viñoly Architects



2



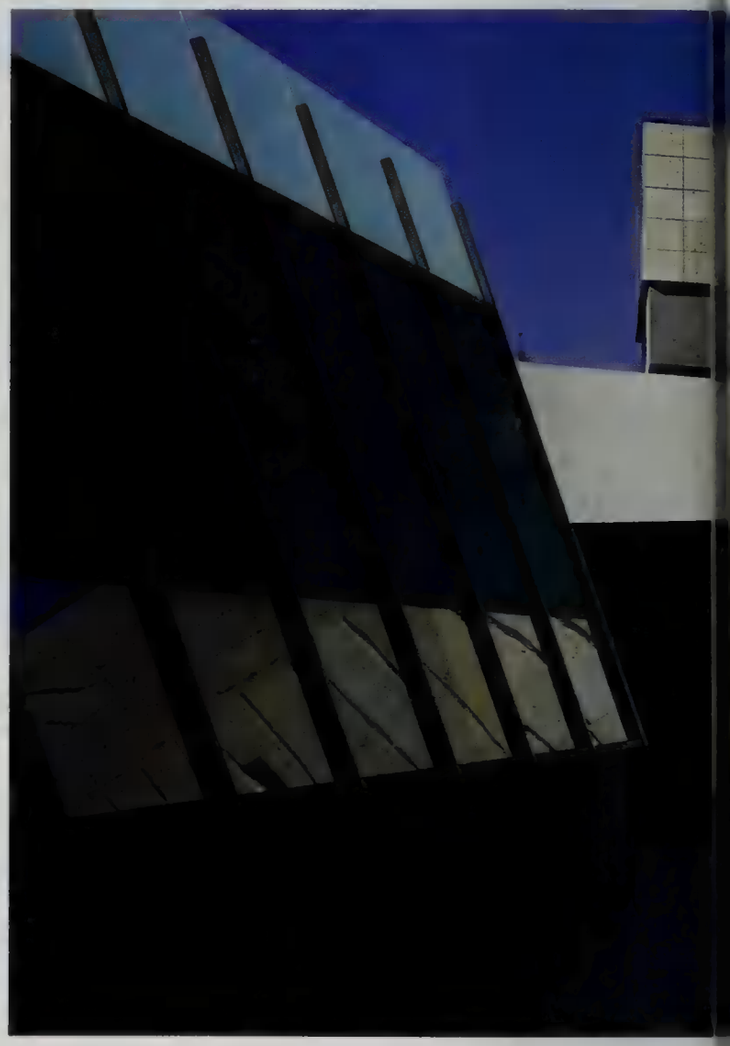
PHOTOGRAPHY: © MATT WARGO (RIGHT); STEVE ROSENTHAL (BELOW);



Restoration and Renovation of Memorial Hall
Cambridge, Massachusetts
Owner: *Harvard University*
Architects: *Venturi, Scott Brown and Associates in association with Bruner/Cott and Associates and Robert G. Neiley Architects*

Restoration of this 1874 Ruskinian Gothic Ware and Brunt structure (left) was accompanied by a small addition and the conversion of the basement to informal dining (top). [RECORD, July 1996, pages 94-99.]

The Neurosciences Institute
San Diego, California
Owner: *The Neurosciences Research Foundation*
Architects: *Tod Williams, Billie Tsien and Associates in association with Joseph Wong Design Associates*



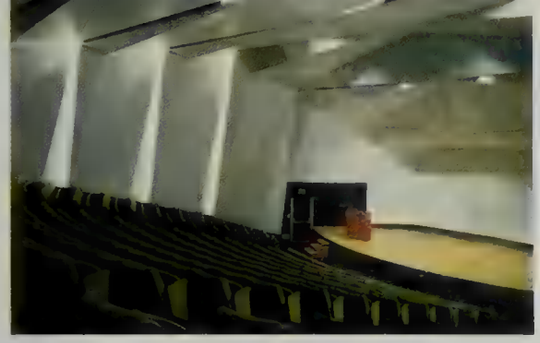
PHOTOGRAPHY: © MICHAEL MORAN (RIGHT AND OPPOSITE); LUCA VIGNELLI (HOLZMAN)



"People tackled complicated projects on modest budgets and still did things that were quite lovely," explains **MALCOLM HOLZMAN,** Honor Awards jury chairman. "The architects and clients had to do creative thinking to get something that was going to be award-winning."

Three buildings for the study of the brain are arranged around a central plaza and gathering space that faces the Pacific Ocean.

"The sophistication of this building is firmly elusive to conventional photography.... It's a testament to the suppleness of this design that it seems to evade adding up when reduced." —Michael Sorkin





What goes on in the minds of jury members? Why are some projects selected for honors, and others rejected? And can honor awards say something about the current state of architecture? Malcolm Holzman, FAIA, chair of the jury for the architecture section of the 1997 AIA Honor Awards, shed some light on the process during a conversation with Virginia Kent Dorris, excerpts of which follow.

Other panel members were: F. Michael Ayles, Assoc. AIA, Antinozzi Associates, Stratford Conn.; Dana Cuff, The Getty Research Center, Santa Monica; Joan E. Goody, FAIA, Goody, Clancy & Associates, Boston; Susan Henshaw Jones, President and Director, National Building Museum, Washington, D.C.; Aaron E. Johnson, Howard University, Washington, D.C.; Robert L. Thompson, Thompson Vaivoda and Associates, Portland, Ore.; Anne G. Tyng, FAIA, Philadelphia; Robert Yudell, FAIA, Moore Ruble Yudell, Santa Monica, Calif.

Malcolm Holzman is a principal with Hardy Holzman Pfeiffer in New York City.

Architectural Record: What was the jury like? What was it looking for?

Malcolm Holzman: We had an unusual jury, I think, in that it was well-mixed. There were people from all over the country, from the West Coast and the East Coast. We had a diversity of ages. The jury was half women and half men. I thought it was as diverse a grouping of people as you might get as a cross-section of architects. I think most of the jurors were meeting three or four people for the first time, so it wasn't a group of people who already knew each other and would always get together. Because of that, there was no predisposition to any type of work.

Record: What was the jury's greatest challenge?

Holzman: The one area that the jury had considerable trouble with was evaluating projects related to restoration. Usually you could tell what a new architect had done, but who should be getting the award? One of the projects that was nominated that didn't receive an award was the

The project displays a "sensitivity to placemaking in chaotic urban circumstances." —David Dillon

Paul Cummins Library
Santa Monica, California
Owner: *Crossroads School*
Architect: *Steven Erhlich Architects*

A midblock parking lot is the "campus" for this inner-city middle and secondary school. Classrooms open onto this gathering space (below). The glazed, wood-framed upper level draws light into the library.





Octagon, the architects' building in Washington. Now it was a lovely building when it was built, and it is still a lovely building, and it's very nice that someone restored it, but the notion that it is in the same category as a new building, or the reuse of a very modest structure in some new way, was very difficult for this jury to come to grips with.

In a restoration it is unclear whether you are rewarding archeology. In other words, if you haven't disrupted someone else's architecture—you haven't ruined someone else's building—why is that meritorious? Because you have good behavior? In relation to some of the struggles that people were going through about architecture, we couldn't compare those kinds of projects against new work. So we didn't. We essentially excluded most of those. I think there is only one older project, and it is Memorial Hall at Harvard [Venturi, Scott Brown and Associates, with Bruner/Cott and [illegible]s and restoration architect Robert Neiley]. That is in fact the only older building that received an award.

Record: Your [illegible] won two awards in the interiors category, both for restoration [New Victory theater, New York City and Dillingham Hall, Honolulu]. How did that make you feel?

Holzman: I loved it. They are terrific projects. It's sort of outrageous, but terrific fun. It also shows that one firm can do diverse work. It's sort of in keeping with these other awards.

Record: How did the Harvard project sneak in?

Holzman: There was a lot of politicking for it. Some of the members of the jury thought it deserved an award because of how well it was done. A very modest addition was made to a rather big building, and it was done in a commodious way. Also, the bottom level of Memorial Hall was redesigned. There was enough of the current architect's work versus the original architect's work to see what the current architect had actually done. The jury saw the work as more than caretaking, and they thought that was meritorious. Older buildings should be recognized, but how they relate to the awards program, I think, needs to be sorted out by the AIA. I don't think they should be in the same category as certain new



Schulman Residence
Brentwood, California
Owner: *Tom and Miriam Schulman*
Architect: *Steven Ehrlich Architects*

Set in a large canyon lot, this house takes cues from early California Modernism. The plan was in part organized around large, existing specimen trees.



Bellevue Regional Library
Bellevue, Washington
Owner: *King County Library System*
Architect: *Zimmer Gunsul Frasca Partnership*

Erected to link this suburban city's commercial core to increasingly dense residential areas, the project's overhanging roofs, skylit stack areas, and public-art gallery welcome patrons.

buildings. Maybe some historic structure belong in the interiors category, because frequently that is what they are really about.

Record: What did the winning projects have in common?

Holzman: A lot of modest projects received awards. These were not necessarily big, gigantic projects. Modesty and commodity were things that were apparent. People tackled rather complicated projects on modest budgets and still did things that were quite lovely. The architects and clients had to do creative thinking to get something that was going to be award-winning.

Record: Which projects did you like best?

Holzman: There was a student-housing project done at Berkeley for the University of California [Manville Hall by David Baker Associates with Crosby Helmich Architects]. Obviously, it was not done with a large budget, but nonetheless, it was a project that exhibited excellence in design. It was the type of project almost any architect in America can imagine having. It is in an urban setting and responds to it.

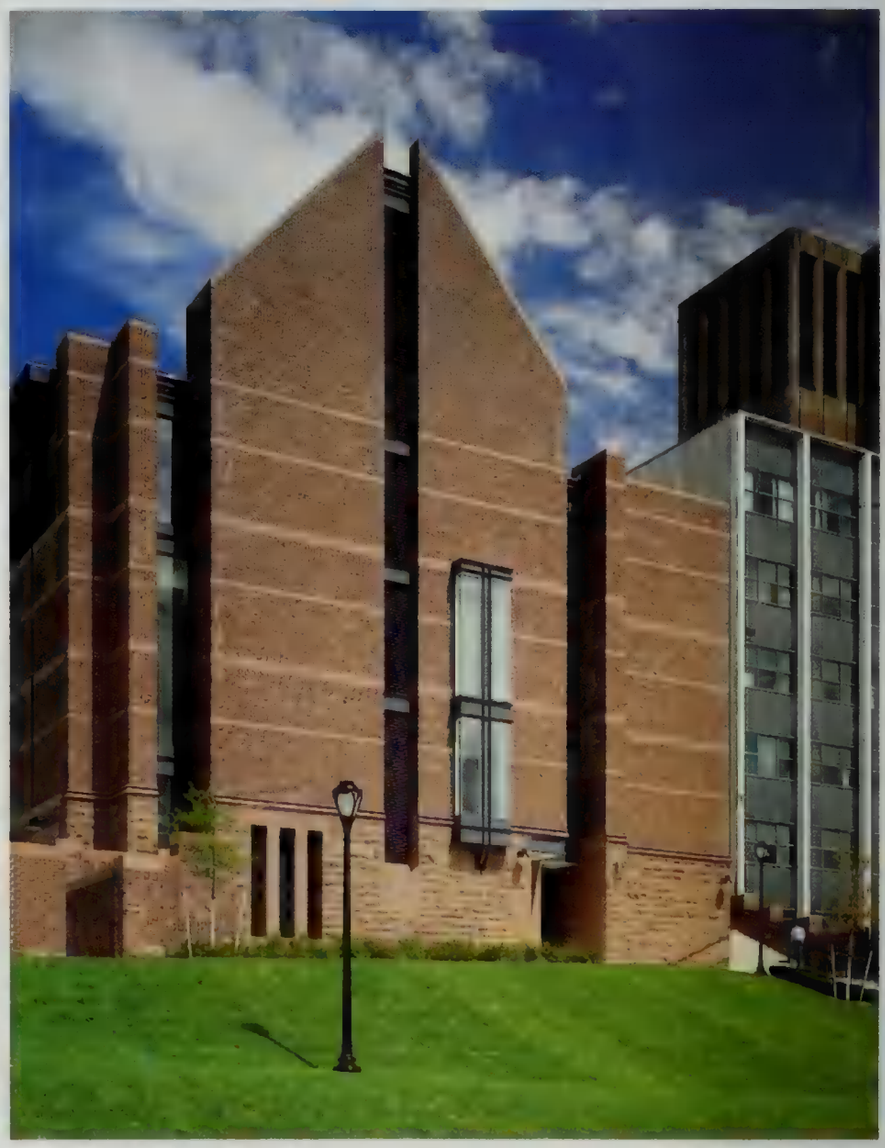
There was also an affordable-housing project—again a very low-budget project—about the shaping of development in San Carlos, Calif., called Laureola Oaks [by Seidel/Holzman, San Francisco]. It uses geometry and shapes—all the standard mix you've seen in every development housing project—and has gone at it in a unique way. Someone didn't give up thinking about design, even though they had a modest budget and a rather confined site. Another one that was great was a guest house built in Mississippi for the Delta & Pinelands Company [Walter Chatham, architect]. This is a very unusual kind of residence. It uses corrugated metal and makes it all into something quite snappy. It was thoughtful. It wasn't a parody of what an "industrial" house could be on an "industrial" site, and it wasn't a parody of what a Southern house could be, but in some ways, it was all of that and a whole lot more. It was a modest project also—not very big, not very expensive, but quite terrific.

Another project that I thought was very nice was in Washington, in the Arlington National Cemetery [KressCox Associates]. It had to do

Nancy Lee & Perry R. Bass Center for Molecular & Structural Biology
New Haven, Connecticut
Owner: *Yale University*
Architect: *Kallmann McKinnell & Wood Architects*

This $25.2-million facility accommodates research laboratories, offices, and teaching space. Entrances, internal stairs, sheltered passages, and a bridge connection unite the facility with related nearby buildings [RECORD, March 1995, pages 84-85].





with making a building for administrative offices and a maintenance shop. This is the kind of building that architects are frequently asked to build in lots of locations, and they end up just looking miserable. This exhibited a lot of expertise and care in how it was put together, how it was sited. It takes its cues from being in a cemetery area. It's a decorous building, a calming building.

Actually, there was a second building that had some old parts in it: the Boyd Lighting Headquarters, in San Francisco [Brayton & Hughes Design Studio]. This was a terrific project. The shell of the building, a little two-story, volumetric industrial building, was reused, but it was reclad. It was about light. It placed little line pieces of glass on the new facade. The inside was dealt with in a rather direct, interesting way.

Those were some of my favorites. There were a lot of other ones, but these sort of represented to me, in a way, situations that I think any architect in America can imagine themselves being in. I think the winners are exemplary because they show that if you have the ability and the desire, you can make something truly wonderful out of any project.

Record: Was there any specific aspect of the projects that the jury focused on? Were they looking at detail, or scale, or context?

Holzman: They were looking for all of those things. I think in some ways, they were not looking for projects that were going to drastically change the direction of architecture. I don't think we actually saw any. I don't think that there were any that pretended to do that. They weren't looking for a style leader, or something that was going to be the hot thing for next year. You wouldn't find what to crib in these designs for your next project. You would have to think about what you are looking at, and figure out how to do it in your own project.

Record: Are this year's Honor Awards different in that respect? Could you see in other years that a specific style was "in?"

Holzman: Yes. There were very few large-scale, blockbuster kind of building projects this year. They were submitted, but they were not chosen. *(text continues)*

Guest House
Medina, Washington
Owner: *Anonymous*
Architects: *Bohlin Cywinski Jackson/James Cutler Architects*
[RECORD November 1994, pages 84-87]

Forming a gateway to a site containing a buried garage and main residence under construction, the house's concrete walls slip into the hillside, while glazed, braced, timber-framed elements open to views of lake and mountains.







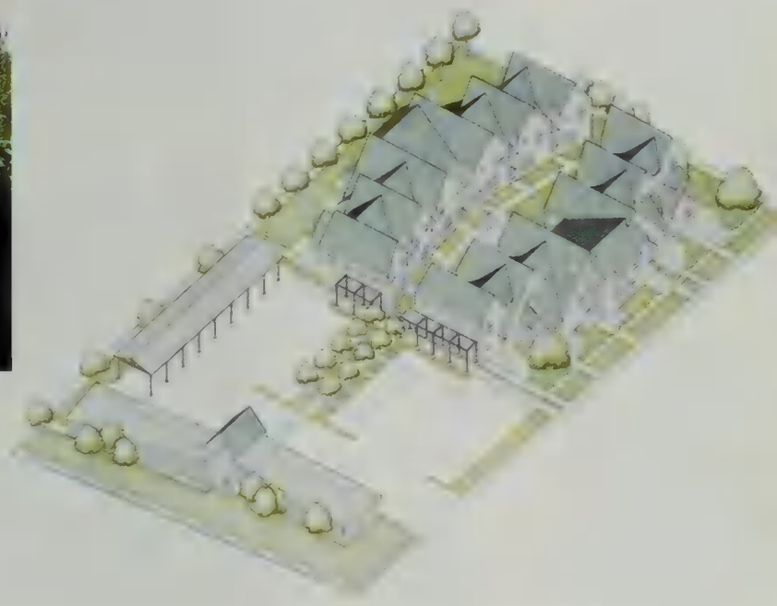
Manville Hall Student Apartments
Berkeley, California
Owner: *University of California*
Architect: *David Baker Associates in association with Crosby Helmich Architects*

The architects used large and small g tures to break down the massing of th campus residential project to fit into vibrant commercial street. A garage a commercial space are topped by 132 apartments.



Laureola Oaks
San Carlos, California
Owner: *Mid-Peninsula Housing Coalition*
Architect: *Seidel/Holzman*

The architect formed 16 units of below-market-rate housing around a courtyard in a neighborhood containing a mix of housing, industrial, and retail uses. The non-profit developer financed the project with grants, federal tax credits, and a state low-interest loan.



"Laureola Oaks has the intimacy and connectedness of an established neighborhood. . ." —David Dillon

Record: There was also some discussion of the 25-Year Award.

Holzman: It came up in conversation. It may bear some examination by the AIA. I think the purpose of the award now is to show that a building has passed the test of time. This year Kahn's library at Exeter Academy was chosen [see story at end of this awards section], and I think

"I DON'T THINK WE ARE GOING TO SEE A GIVEN STYLE TAKE HOLD."

it's a fine building, but Kahn's buildings have won before. The eight or ten other projects nominated caused us to ask what its purpose really was.

Mr. Kahn was riding what I would call a cycle of current popularity—not ill deserved, well-deserved. On the other hand, there are some other architects who had a kind of practice 25 years ago that the profession is not now in in sync with. I'm not sure if these buildings will be considered again, so you may have the finest example of an architect's work, and yet because it is not in sync with current thinking, the jury won't consider giving it a 25-year award.

Maybe the award should be more than about passing the test of time.Maybe it is also representative of the architect's work and that architect's contribution to architecture. If it is the best example of the architect's work, maybe it should receive an award just for being that. In some ways, 50 years would be better, because it would be more startling that anybody ever made *that* building. The 25-year Award tends to be conservative, historically, rather than outlandish, as some of the architecture awards have been.

Record: Which ones do you think have been outlandish?

None of the buildings selected this year were challenging gravity, trying to take off; none of them pretended they had electrostatic roofs and were hovering over the ground. They weren't outlandish in that way. I think they were challenging what you can get out of a dollar bill. I think that not every architect really does that. ■



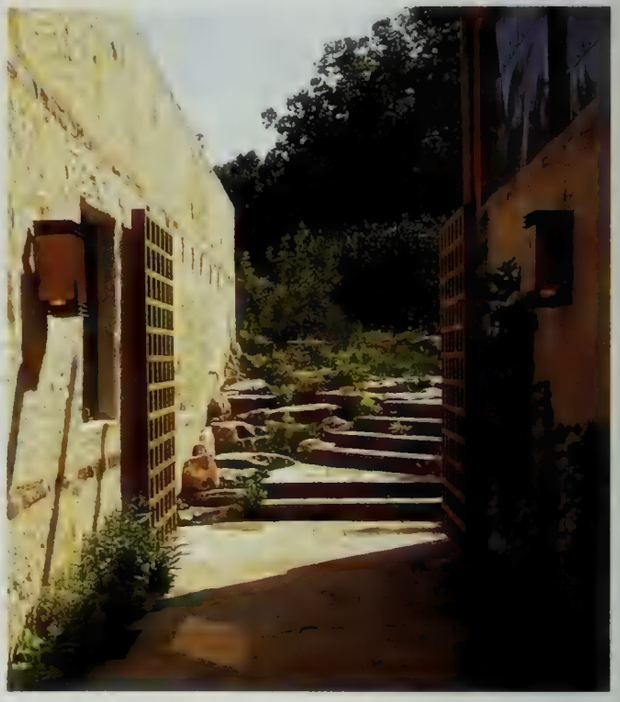
Arlington National Cemetery Facility Maintenance Complex
Arlington, Virginia
Owner: *U.S. Army Corps of Engineers*
Architect: *KressCox Associates*

A series of hip-roof pavilions wrapped around a courtyard fit the 46,000 sq ft of delivery, storage, and maintenance areas into the nation's chief memorial cemetery.

Lasater Residence
Fort Worth, Texas
Owner: *Mr. and Mrs. Garland Lasater*
Architect: *Lake/Flato Architects*

A series of pavilions face onto courtyards, shielding the house from hot Texas summers while drawing in breezes.







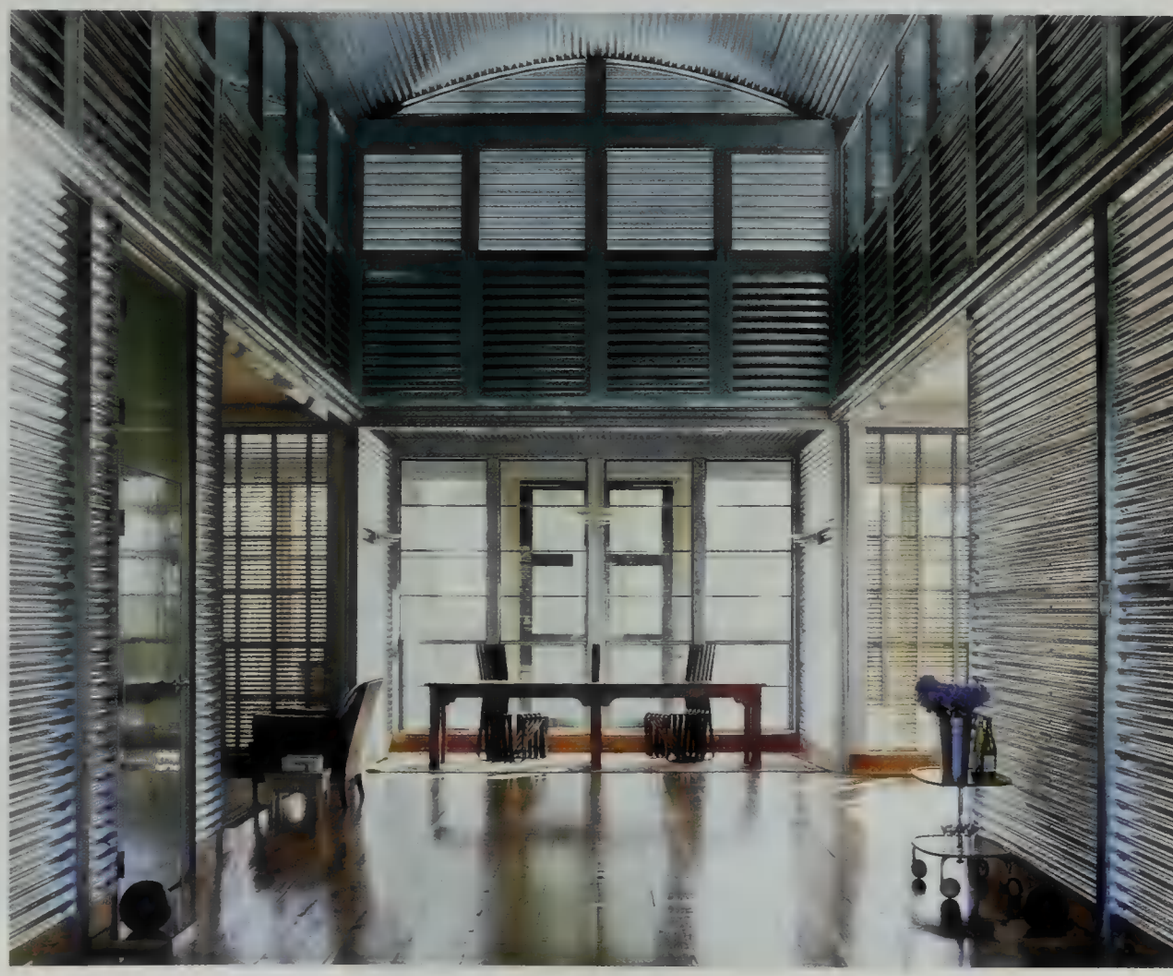
"Today's Modernism is less optimistic and has a less-idealistic agenda for social change," says **MARGARET McCURRY** in her awards comments. "But architects are still searching for a moral and ethical means to practice and for practice methods that contribute to societal advancement."



Delta & Pinelands Company Guest House
Scott, Mississippi
Owner: *The Delta & Pinelands Company*
Architect: *Walter Chatham, AIA*

Recognizing its Mississippi location, the 2,000 sq ft house is raised on pilings so flood waters pass underneath. The plan permits cross ventilation, and deep overhangs shade corrugated-metal walls.

". . . the rural projects of Lake/Flato Architects and Walter Chatham . . . articulate the vernacular with clarity and modesty . . . reminding us of our own deep roots." —Margaret McCurry



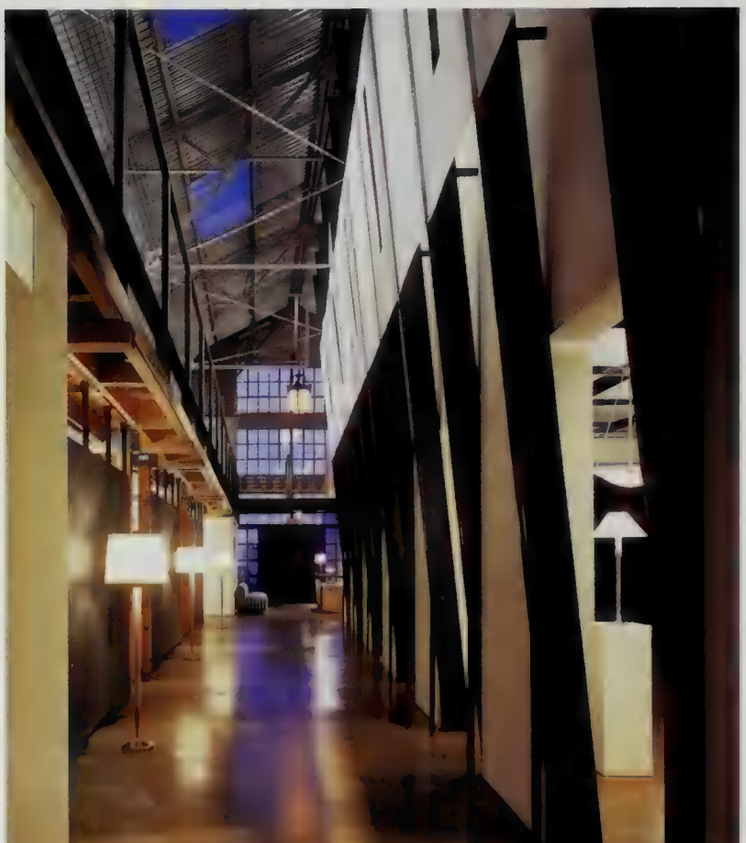
I worked with Robert Campbell, FAIA, on a retrospective look at AIA's Honor Awards for the 1988 convention in New York City. As we were preparing our presentation, Campbell made the following observation: "One would like to know the politics of starting the award at just the time when Modernism and traditionalism were locked in a death embrace. One side or the other, surely, saw the awards program as a way of certifying its legitimacy." While ideological divides are not so deep today, a look back at the 48-year history of the AIA Honor Awards shows an evolution in what the profession and the AIA thought that they should represent.

The first AIA awards, in 1949, restricted entries to residences and schools, and the winners were clearly of the Modernist camp. Eight—almost half the winners—were located in California, just as six of the 13 current architecture winners are. The early California projects were divided between what has come to be known as Bay Area Regionalism (represented by William Wurster and Joseph Esherick), the neo-Miesian Case-Study Houses (sponsored by John Entenza's Los Angeles-based *Arts & Architecture* magazine), and the neo-Corbusian influences that surfaced in the work of Rudolph Schindler and Richard Neutra.

In 1949, virtually all of the honored houses possessed an economy of scale that doesn't seem to be a concern of the Schulman residence, a current winner. Modernism having come full circle, it seems that the baby boomers who grew up in modest split-levels and ranches now commission neo-Neutra residences twice the size of their precursors. It falls to a guest house in Washington State to remind us of the more diminutive size of those early West Coast residences that economically expressed their structure in the wood and stone of the region. Even in the guest house, though, our current ambivalence is signaled in the eccentrically disposed external column, tripping and tipping over a rock foundation.

Margaret I. McCurry, FAIA, is a principal of Tigerman McCurry Architects in Chicago. She also chaired this year's interiors award jury.







Boyd Lighting
San Francisco, California
Owner: *Boyd Lighting*
Architect: *Brayton & Hughes Design Studio*

From blue-glass lites punched through seismic-reinforcing panels (left) to a canted wall that is light diffuser by day, light fixture by night (below right), the project expresses the owner's products.

Just as jury proclivities have changed over time, so have award criteria. The early awards were by building type and reflected convention themes. When the AIA board added hospitals as a category in 1951, nine took home prizes, undoubtedly more that year than in the entire rest of the program's history. In recent years, the program has widened to consider not only "design advancement," but to recognize "qualities of resolution," including exemplary responses to technical requirements, social progress, environmental progress, and historic preservation. In 1997, Laureola Court, an affordable-housing community, exemplifies the kind of entry these [illegible] are designed to attract. In scale and character it also harkens back to the [illegible] Bay region winners.

In the first 10 years of the Honor Awards program, California projects dominated the awards [illegible] 40 percent. Over the history of the awards, California's share [illegible] to a still impressive 23 percent. What is it about the place that [illegible] to dozens of diverse juries? Clinging to the edge of the continent in more ways than one, the state has promised a freedom of expression and a potential for self-reinvention precluded by the confining historicist attitudes of the opposite coast. Its fast-growing urban centers have attracted a liberally educated, open-minded, esthetically inclined clientele, who in turn have drawn architects of high caliber. Even jurors from more conservative climes have singled

"AN INDUSTRIAL ESTHETIC HAS BEEN COMPELLING SINCE THE BEGINNING."

out as enviable an architectural production that sat precariously on the stylistic cutting edge, and which has become so much a part of the psyche of the American avante garde.

Those first 10 years brought forth an interesting mix of old and then-new talent. Neutra won the first of his seven Honor Awards in 1951, at the age of 58; he garnered three more in the following year. Rudolph won his first of four awards in 1950 at the age of 32. In 1952, Skidmore,

Delano Hotel
Miami Beach, Florida
Owner: *Ian Schrager Hotels*
Designer/Architect: *Phillipe Starck, Designer; PMG Architects, Architect*

Among the most ambitious renovations in the city's Art Deco landmark district, the 1947 tower (Robert Swartburg, original architect) has been evocatively transformed by means of breeze-rustled curtains (below), stark white rooms, and furnishings ranging from "too big" to "too small."





Meyocks & Priebe Advertising
West Des Moines, Iowa
Owner: *Meyocks & Priebe Advertising*
Architect: *Herbert Lewis Kruse Blunck Architecture*

For an agency specializing in agribusiness clients, the architect adapted materials commonly found on farms—such as corrugated metal from feed bins and translucent fiberglass roofing—to make meeting rooms, paste-up areas, and work space for creative personnel.

Owings & Merrill (SOM) landed its first award for Lever House. To date it has collected 33 awards, more than double the number of any other firm, but it has also been among the nation's largest firms.

Ludwig Mies van der Rohe served on the 1955 jury, which handed both Eero Saarinen and SOM double honors. The following year, Saarinen chaired the jury that gave Philip Johnson his first Honor Award at age 50. Mies never submitted any of his own work to be juried. Neither in fact did Louis I. Kahn, this year's 25-Year-Award winner. (Kahn's *firm* entered the Kimball Art Museum the year Kahn died in 1974. It won, as did Yale's British Art Center in 1978.)

The phenomenon of "threepeats" began in 1951 when California-based Maynard Lyndon (father of Donlyn) won his third award in as many years for his own home. Designers catch a wave for a variety of reasons and are able to ride it to multiple awards. A jury may be looking for, and feels it has found, an emerging talent. Sometimes it is recognizing someone who is clearly at a creative peak. Vincent Scully had received three awards by 1960. Taft Architects, of Texas, had a run of three in the 1980's, when Postmodernism was riding high. As juries began to reward resolution rather than innovation, William Rawn's multifaceted Massachusetts firm recently won three years in a row for both its urban design and social-cause-oriented projects cast in a historicist style.

As the 60's began, Modernism was firmly entrenched. Every major Modern architect won again and again for Fortune 500 corporate headquarters, campus buildings, office towers and airport terminals, factories and hotels. Occasionally a prefabricated tract appears on the list, but projects dealing with social causes are few and far between.

In 1967 Moore/Lyndon/Turnbull/Whitaker's Sea Ranch surfaced as the expression of a regional esthetic. It is mirrored today in the work of Lake/Flato Architects and Walter Chatham, two winners whose rural projects, like those of Mockbee/Coker, modestly articulate a vernacular, and remind us of our own deep roots. The imagery of Sea Ranch became so compelling that Moore and Turnbull *(continued on page 262)*

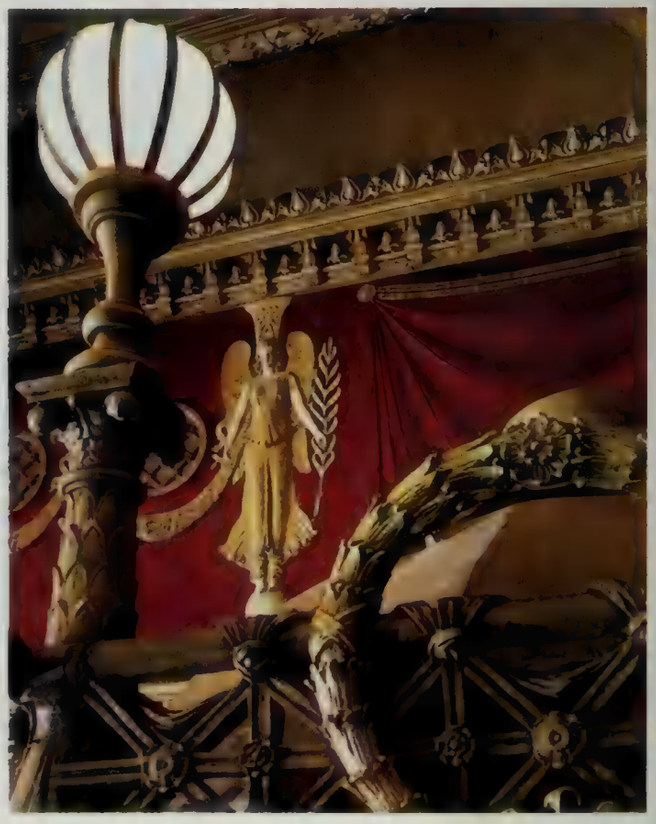


Dillingham Hall
Honolulu, Hawaii
Owner: *Punahou School*
Architect: *Hardy Holzman Pfeiffer Associates*

The architect reconfigured an existing theater (above) and added 7,000 sq ft to the 1929 Bertram Goodhue structure. The new seating arrangement improves sightlines and acoustics; painted metal arches support new theater technology.

New Victory Theater
New York City
Owner: *The New 42nd Street, Inc.*
Architect: *Hardy Holzman Pfeiffer Associates*

*Once abandoned, restoration of this 1900 J.B. McElfatrick & Sons Broadway theater (for live childrens' programming) was key to revival of famed 42nd Street [*RECORD*, February 1996, pages 67-71].*



PHOTOGRAPHY © ELLIOT KAUFFMAN / ARCHITECTURAL RECORD

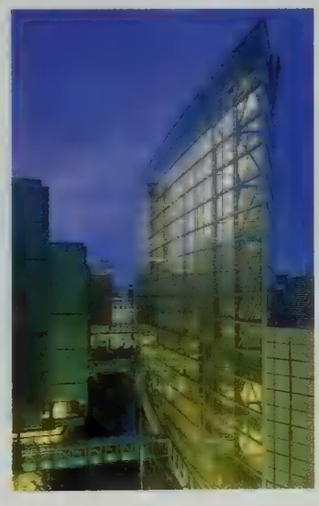


"The buildings seem very much like their photographs: crisp, well-composed, no mess anywhere," observes **MICHAEL SORKIN** in his assessment of the awards. "Perhaps in the wake of the decorative excesses of Postmodernity, the AIA is simply trying to lower the temperature."



Henri Beaufour Institute, USA
Washington, D.C.
Owner: *The Henri Beaufour Institute*
Architect: *Williams & Dynerman Architects*

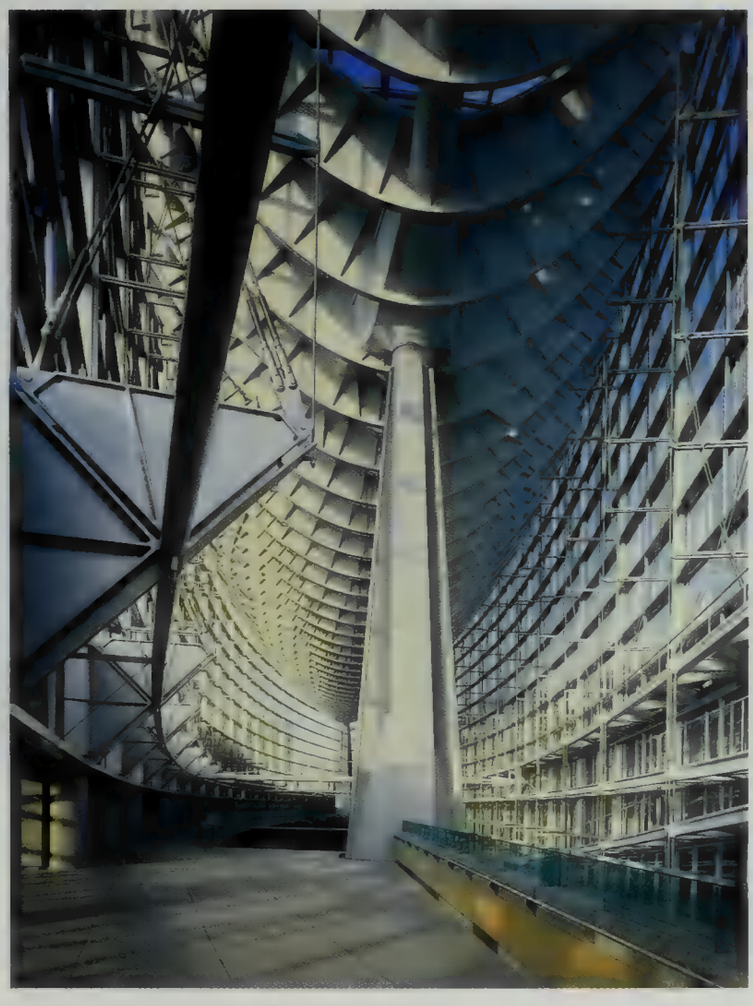
The architect applied a palette of neutral materials and panels and scrims of perforated aluminum to break down hierarchical office relationships and bring exterior light and views to the interior.



"Once you walk in [to the Tokyo Forum], you feel it would be impossible to walk out. You are transfixed by this monumental urban interior that unfolds compositionally, much like a city street." —the Jury

Tokyo International Forum
Tokyo, Japan
Owner: *Tokyo Metropolitan Government*
Architect: *Rafael Viñoly Architects*

A 750-ft-long truss-supported skylight is the key unifying element of this colossal $1.5-billion combined performing-arts and convention center.

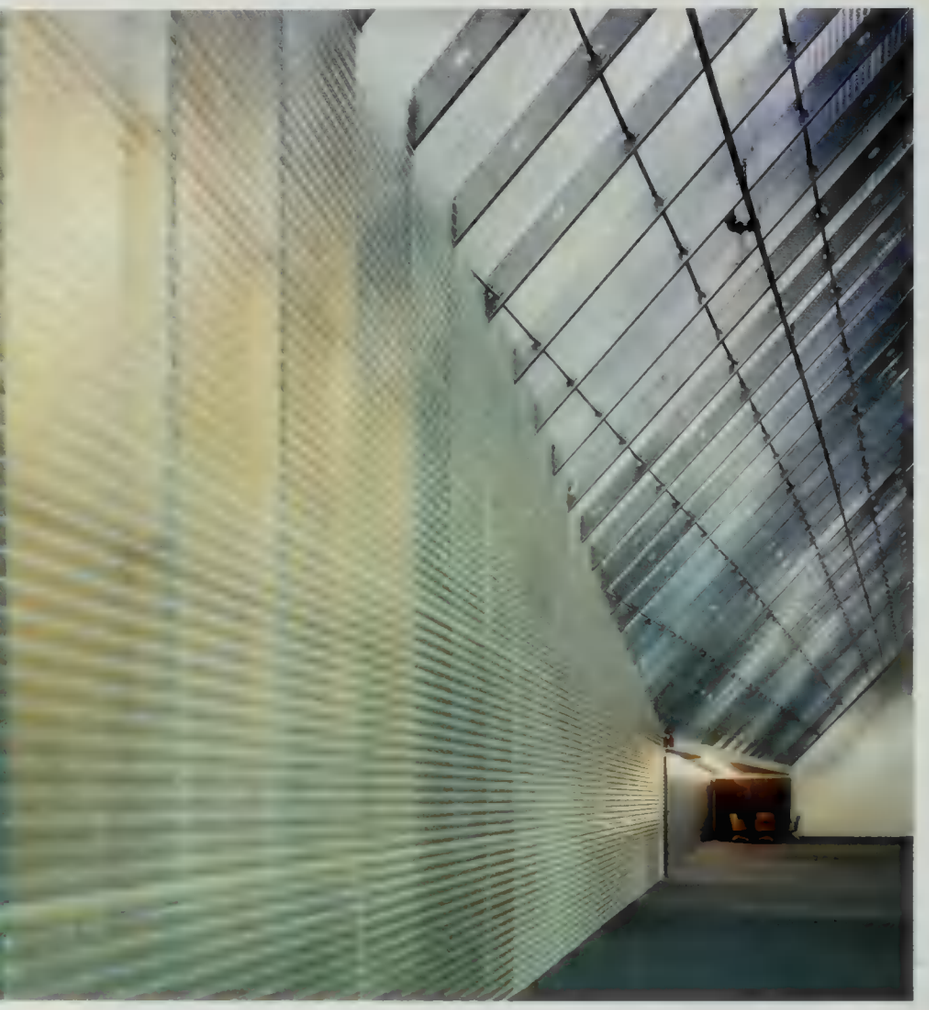


Here's the nightmare. Vincent Scully has been taken ill. I find myself at the lectern in the front of a darkened auditorium as pairs of slides flash on the screen. The pressure is on for a lecture both witty and deep. I don't recognize most of the buildings. Crouched over a loupe, staring at pairs of slides of the 1997 AIA award-winners, I'm having a similar feeling. The pressure's a little more attenuated but it's still the job of an old-style CIA Kremlinologist, trying to come to sweeping generalizations from satellite photography. This is a risky business at best: after years of analyzing the May Day guest list atop Lenin's tomb, they still missed the collapse of Communism.

Certainly one of the striking things about the *representation* of the awarded work is the classic depopulated quality of the photographs. This seems to be one of the stable characteristics of architectural photography, the perennial assumption that the most essential image of a building is one in which the inanimate is foregrounded. This is not trivial, however familiar the lament. As architecture is increasingly mediated by the mechanics of publicity, such standard tropes of observation increasingly come to stand for architecture itself. The risk is that the values of the photograph more and more double back to inform the character of building, arguing against an episodic and changeable architecture and for more finite and graspable forms.

A striking case in point among the winners is the very extensively published Neurosciences Institute by Tod Williams and Billie Tsien. Seeing it published in one or two photographs over and over, I could not form a picture of it until I saw a set of drawings. The sophistication of this building is firmly elusive to conventional photography, at least to the kind of conventional photography which seeks to capture the work in a single view. The camera—with its established routines of framing and its preference for the iconic—circumvents the parti, the real fundamentals of

Michael Sorkin is a New York City-based architect and critic, and is a contributing editor to RECORD.



Praxair Distribution
Ankeny, Iowa
Owner: *Praxair, Inc.*
Architect: *Herbert Lewis Kruse Blunck Architecture*

One-third of an existing warehouse was converted to office, conference, and training operations, but the architect expressed the industrial nature of the operation in the remodeled space.

Root House
Ormond Beach, Florida
Owner: *Chapman J. Root, II*
Architect: *Pasanella + Klein Stolzman + Berg Architects*

Reworking an existing ocean-front residence, the architect introduced a three-story space as an extension of the water view into the house. A cantilevered wood bridge crosses the space, supported by aluminum- and copper-mesh screens.



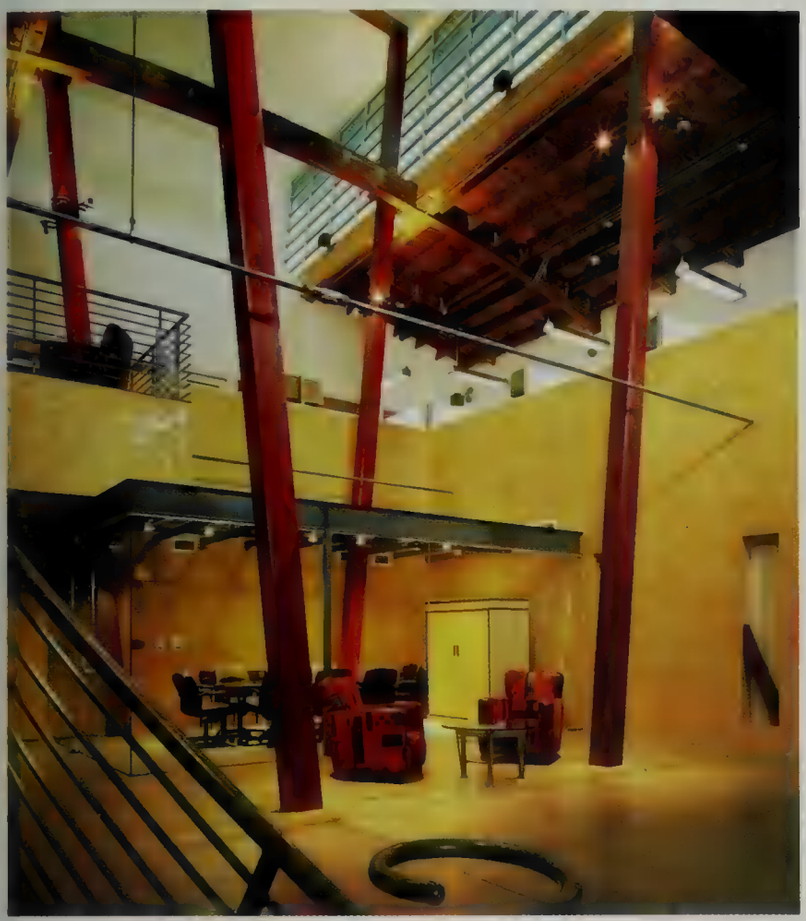
order. But this is a building which resists summary, and it's a testament to the design's suppleness that it seems to evade adding up when reduced.

Still, there does seem to be some territory for generalization: looking at the pair of photographs the AIA has supplied, I can only observe that the group of projects selected is very clean indeed. The build-

"EVEN THE LOW-COST HOUSING IS SUBURBAN."

ings seem very much like their photographs: crisp, well-composed, no mess anywhere, nothing that resists easy comprehension. The impression is very much as they have to say in the music business. Perhaps in the wake of the deconstructivist fiasco and the end of Postmodernity, the AIA is simply trying to lower the temperature. If so, it has succeeded: the awarded work is consistent if not gloriously hybrid in its language—almost all of it comfortable under the unamplified rubric of modern architecture." The historic creeps in either in the several fine renovations premiated or in structures—such as a guest house in Mississippi or a little housing project, and several buildings described as the legatees of "California modernity"—which directly riff familiar forms. It's all very fastidious, inflected rather than inspired.

Looking at this work, I was struck with the impression that all of it seemed to be from one place, somewhere kempt and peaceful and very upper-middle class, a world of fine homes and guest houses (for, among others, Bill Gates), of prestige universities, of mammoth (and truly spectacular in this case) convention centers, of ad agencies, of expensive boutiques and glamorous hotels, of public libraries in good neighborhoods. Even the low-cost housing is suburban. To be sure, there's an indecipherable redo of a Pruitt-Igoe style public-housing project in Baltimore but it's a token, another historic renovation, urban public housing being something from a bygone era. Taken all together and despite claims to the contrary, this is a collection of buildings which seem



Bow Truss Studios/Game Show Network
Culver City, California
Owner: *Sony Pictures Entertainment*
Architect: *Steven Erhlich Architects*

The architect popped up a clerestory, transforming California's canonical industrial building type, the bowstring-trussed masonry warehouse, into a startup business' new home [RECORD, February 1995, pages 78-81].

Bottega Veneta
Boston, Massachusetts
Owner: *Bottega Veneta*
Architect: *Francois deMenil Architect in association with Bergmeyer Associates*

Architectural elements create a serene setting for contemplation and purchase of this retailer's luxury leather goods and accessories [RECORD, May 1996, pages 108-109].





to share a sense of place. Perhaps this is inevitable in a global environment in which regionality is so malleable it seems like affectation.

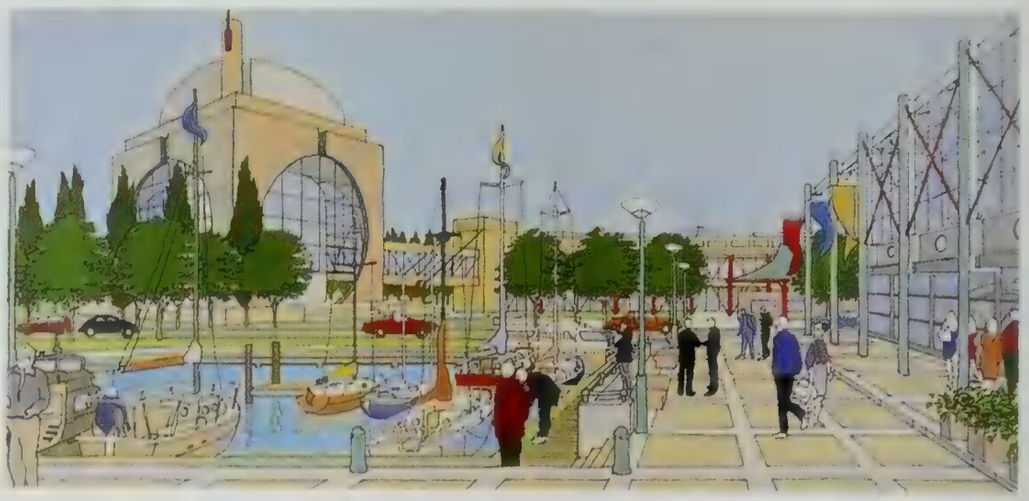
The big-scale, from-scratch urbanism is much the same. The two schemes awarded are both in fairly exotic situations—Honolulu and Ho Chi Minh City—and seem like big, decent, if not particularly innovative projects. Not to overplay the CIA metaphor, but it does seem that if Skidmore, Owings & Merrill is directing the urban future of Vietnam, creating a glamorous haven for multinationals, it may be that we won the war after all. What's most striking about the urbanity of the winners taken as a whole, though, is that most are projects for communities of modest, suburban, scale. There's a kind of arcadia here, a place that seems far away from the real problems of cities, a place where things work, where density is low and cleanliness high, where things are easy and the weather is always warm. It's the New Urbanism, I suppose. And this gives me a little chill: one movement's arcadia is another's gated community.

Which brings me back to the question of the people missing from these images. Although humans never appear, plant life often does. The subjectivity of plants—visible in the perfect arrangements of flowers (never food) on the dining-room table, the elegant oak in the foreground, the garland of leaves surrounding the long shot—comes to stand in for human subjectivity in this sunny universe. Certainly, over the past decade or so, architects have come to be more and more sensitized to questions of the environment and of ecology. What these representations suggest to me is that the environment (something which continues to be represented as essentially outside human ecology) has become a surrogate for human occupation, which—unlike the well-disciplined plant—has the effect of messing up architecture.

Reading through this photography, most of the winners do seem to be fine buildings, some exciting. But—as an inveterate New Yorker—I'm left with the feeling that these projects—taken all together—are celebrations of a place where I spend very little time, a place which may not even exist. Except, of course, in the magazines. ■

Parco San Giuliano
Mestre-Venice, Italy
Owner: *City of Venice*
Architect: *Comunitas Architecture, Planning, Urban Design*

Straddling the road and train connection to Venice at the mainland lagoon edge (below), this park will bring new amenity to overlooked, industrial Mestre, including an intermodal transportation center and aquarium (right).

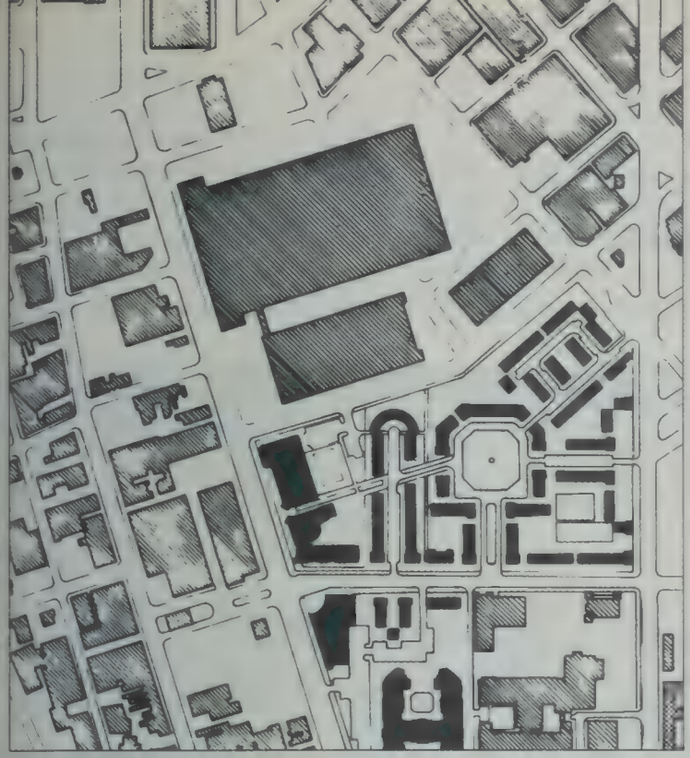




"... Venice's boldest urban gesture in a century, proposing nothing less than a reuniting of the romantic but moribund city of canals with its ugly but thriving industrial sibling, Mestre" —David Dillon

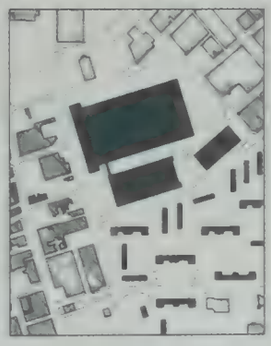


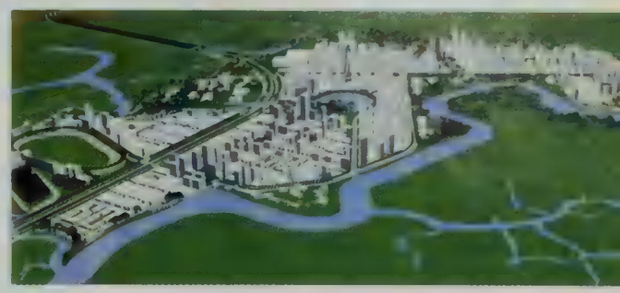
"Urban design, an award category added only in 1994, is often filled with plodding pedestrian malls and pointless streetscaping schemes," critic **DAVID DILLON** writes in his assessment of the awards. "Not this year. From Saigon to Chicago the Big Plan is making a comeback."

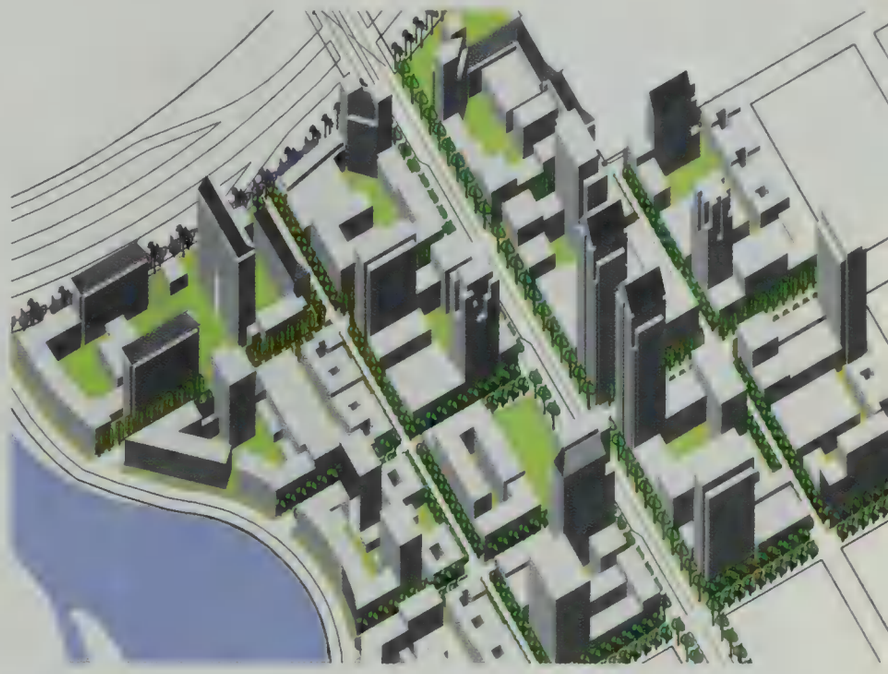


New Lafayette Courts
Baltimore, Maryland
Owner: *Housing Authority of Baltimore*
Architect: *CHK Architects & Planners*

The design team re-integrated a 21-acre public housing project with the fabric of the city by replacing isolated towers (prior site plan, right) with a mix of row houses and mid-rise apartments arranged around streets and squares (above).







Saigon South Master Plan
Ho Chi Minh City, Vietnam
Owner: *Central Trading & Development Corporation, Phu My Hung Corporation*
Architect/Urban Designer: *Skidmore, Owings & Merrill*

To provide a pattern for sustainable growth, this scheme develops distinct waterway-surrounded neighborhoods (city center, above). It is intended to protect this tidal region's water quality and hydrology, while ultimately housing up to one million people.

The 1997 American Institute of Architects Honor Awards range from a guest house for the nation's wealthiest entrepreneur, Bill Gates, to a public-housing project for some of its neediest citizens. Such a spread suggests either a remarkably inclusive agenda at the AIA, or none at all. Many of this year's architecture awards went to designs for institutions and corporations, or to private clients with elegant tastes and plenty of money to spend. There were no forays into the vast hinterland of shopping centers, parking garages, and drive-in banks where so much of contemporary practice resides. Nor did social value get many votes unless dressed up in architecture with a capital A.

The notable exception was urban design, an award category added only in 1994, and often filled with plodding pedestrian malls and pointless streetscaping schemes. Not this year. From Saigon to Chicago, the Big Plan is making a comeback. The Regional Plan Association recently published its plan for New York, New Jersey, and Connecticut, featuring new rail lines, a dozen greenbelts, and numerous regional downtowns. The new plan for Washington, D.C., is similarly aggressive about removing freeways and reclaiming waterfronts. Chicago is about to update the 1909 Burnham Plan. Even Dallas, Tex., where planning has historically been viewed as a burr under the saddle of progress, has adopted a long-range capital-improvements program that includes a light-rail system, a new airport, and a river-reclamation scheme. These are not tepid policy documents, but bold physical plans for rebuilding and reconnecting fragmented cities.

An unfortunate legacy of urban renewal has been a distrust of big ideas. Since the 1960's, any plan that encompasses more than a few blocks, or that carries the imprimatur of a government agency is automatically suspect. Concerns about traffic, scale, and views routinely coalesce into intractable opposition to any proposal that is not commu-

David Dillon, of Amherst, Mass. is the architectural critic for the Dallas Morning News and a contributing editor of RECORD.



Kakaako Makai Area Development Strategy
Honolulu, Hawaii
Owner: *Hawaii Community Development Authority*
Architect: *ELS/Elbasani & Logan*

Extending an existing park and drawing a park-like promenade upland, transforms this redevelopment of a low-scale superblock layout into a mixed-use, pedestrian-oriented neighborhood of much higher density.



"The plan for the Kakaako Makai area is almost a tropical version of Parco San Giuliano, reconnecting Honolulu to its industrial waterfront, while introducing new uses . . . ."
—David Dillon

nity-driven. These collective fears—sometimes justified, sometimes merely neurotic—have fueled the preservation movement, Postmodernism, and now the New Urbanism. At the same time, more and more cities with exquisite streets and neighborhoods are falling apart for lack of a larger civic vision. Look no further than where our nation's capital has been (and still is).

This year's urban-design awards suggest that the larger vision is returning, although the fact that the three boldest planning efforts are outside the continental U.S. suggests that vision is more welcome abroad than here. The awards range from a footbridge in New York City's Tribeca neighborhood—a small intervention with major urban consequences, to master plans for Venice, Honolulu, and South Saigon. In addition to being [illegible] daring, the plans display a sensitivity to issues that 60's [illegible] ignored: ecology, conservation, indigenous culture, the [illegible] as well as what might be.

"We tried to be inclusive rather than exclusive," explained jury chair Robert Beckley of the University of Michigan, "to show the range of work being done but to be socially relevant as well."

Parco San Giuliano (Comunitas, Boston) is Venice's boldest urban gesture in a century, proposing nothing less than a reuniting of the romantic but moribund city of canals and cathedrals with Mestre, its ugly but thriving industrial sibling. The park is the link between two worlds and the catalyst for transforming the region's transportation, ecology, and cultural life.

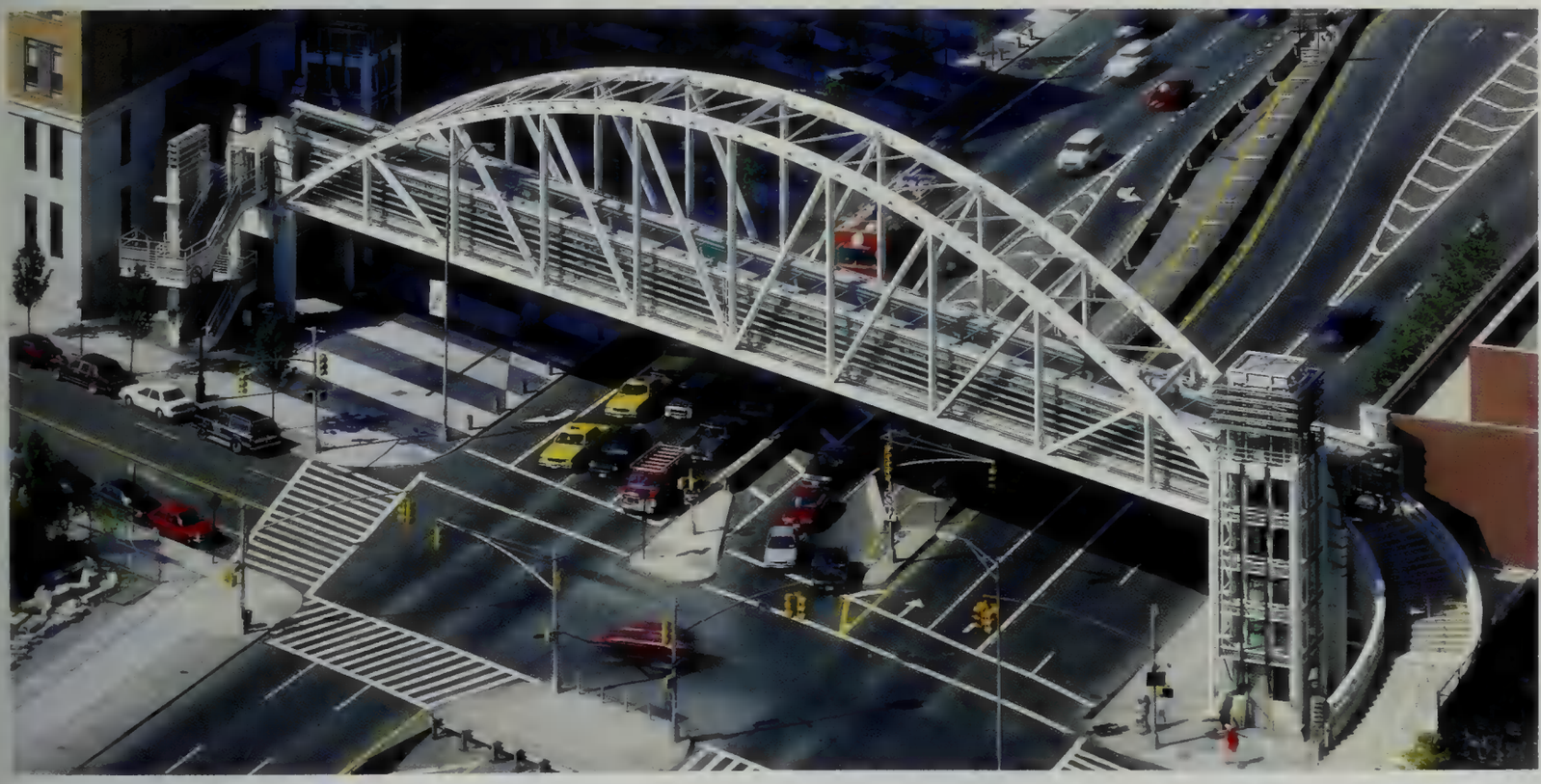
The plan for the Kakaako Makai area (ELS/Elbasani & Logan Architects of Berkeley, Calif.) is almost a tropical version of Parco San Giuliano, reconnecting Honolulu to its industrial waterfront, while introducing new uses (housing, offices, retail) that will make it a destination for residents and tourists.

The plan for Saigon South (Skidmore, Owings & Merrill, San Francisco) looks at first glance like an Eastern version of the firm's 1980's work at London's Canary Wharf with skyscrapers and megablocks push-



Tribeca Bridge
New York City
Owner: *Battery Park City Authority*
Architect: *Skidmore, Owings & Merrill*

The arching form of this bowstring-truss bridge offers a gateway to lower Manhattan for traffic on highwaylike West Street. Scaled-down metal details beckon students and neighborhood residents to use this pedestrian overpass.



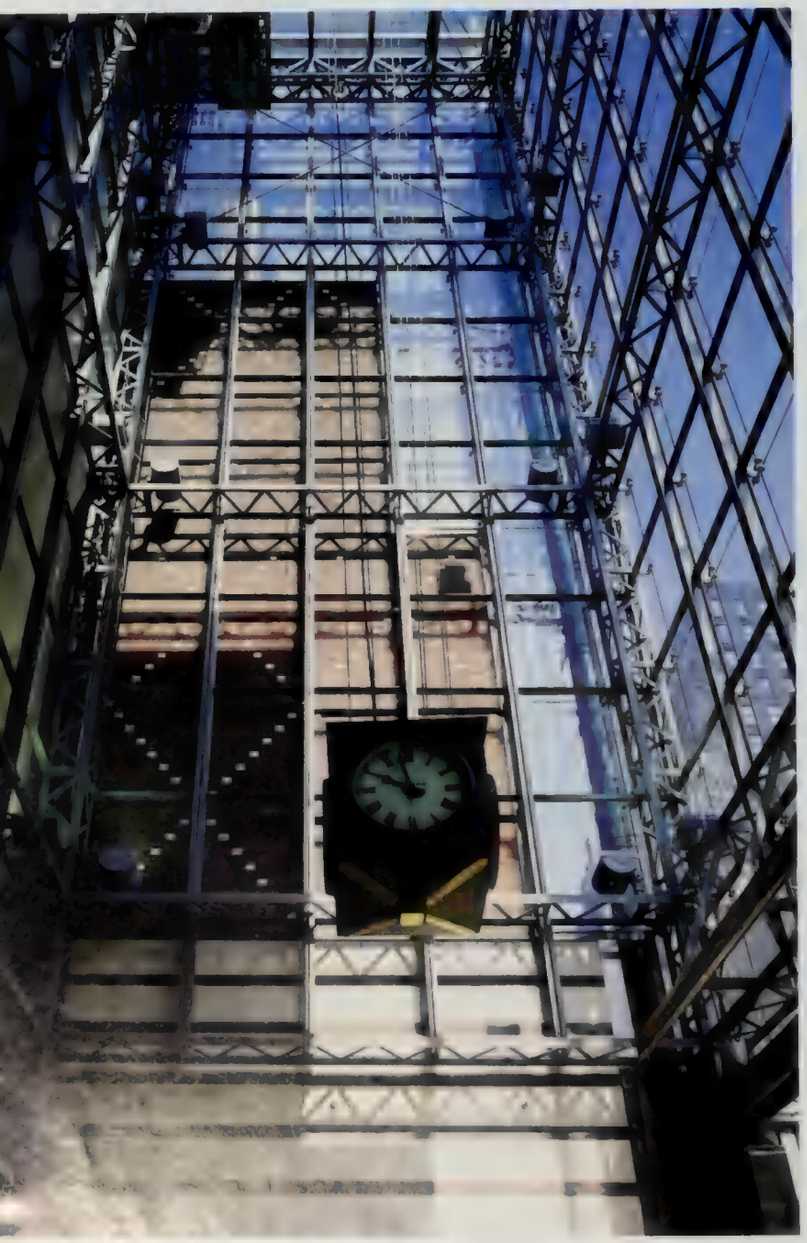
ing to the water's edge. Yet, in among the towers are canals, gardens, and pedestrian ways that reveal a sophisticated balancing of aggressive Western capitalism and Asian delicacy.

A few of the architecture winners display a similar sensitivity to placemaking in chaotic urban circumstances. The Paul Cummins Library, in Santa Monica, Calif. (Steven Ehrlich Architects, Santa Monica) converts a warehouse alley, near a freeway into a large outdoor room for the students and faculty of a private school. At Laureola Oaks, in San Carlos, Calif., Seidel/Holzman Architects, San Francisco, transformed an abandoned construction yard—likewise sandwiched between freeways and warehouses—into a 16-unit affordable-housing project.

Laureola Oaks has the intimacy and connectedness of an established neighborhood, although the proliferation of porches and white picket fences suggests, as does most New Urbanism, that the only way to create community these days is through nostalgia. Instead of striving to be ideal objects in space, both projects accept edges as part of the urban condition and try to work with them.

The impoverishment of American public life is inescapable. We can't seem to create public places, don't know how to enjoy them, and in many cases are terrified of them. The Honor Awards are one way to reassert the value of the public realm without diminishing the "art of design." The AIA has honored ballparks and arenas in the past—responding to the current entertainment craze in American cities—but few airports, courthouses, post offices, or train stations. (Do we even talk about train stations anymore except as dangerous places?) Such projects are more likely to turn up in the intermittent GSA and Presidential Design Awards. All the more reason for the AIA to seize the opportunity to reassert the importance of civic planning and design and to celebrate its successes. ■

R.M. Kliment & Frances Halsband Architects





Founding partners Frances Halsband and Robert Kliment (center rear above) named three new partners this year. From left to right: Michael A. Nieminen, Richard McElhiney, and Alejandro Diez. The broad range of the firm's built work includes (from left) an entrance to a railroad station and two computer centers.



In contrast to the curling vinyl wallcovering and dingy light fixtures of the aging office building where the firm of R. M. Kliment & Frances Halsband Architects has its offices, their glass and oak-paneled entrance door stands out. It's not a design statement; its recessed panels are a little shallower, its stiles drawn a little deeper than a wood door selected from a catalog. In a world that seems little interested in the way things are made (indeed, the firm's building is simply the commercial-maintenance norm), this humble door stands for a design mode increasingly seen as quaint. Kliment/Halsband is this year's AIA firm-award winner, and the selection of these avatars of the telling detail over numerous practitioners of the bravura gesture brings into focus some of today's practice dilemmas.

The firm offers what many clients say they want—a self-effacing design approach focused on the problems at hand. And yet they are not household names. A 1983 computer-science building for New York City's Columbia University successfully slips under the massive Mitchell/Giurgola building to which it attaches, while acknowledging the historic McKim Mead & White context of the larger campus (opposite bottom right). Another computer center for Princeton University, in New Jersey, draws together fragmented pedestrian patterns, addresses a future quadrangle, and recognizes internal changes of function through a subtle orchestration of brick patterns and fenestration (below). The work has evolved, however. A tower over a subterranean stair for the Long Island Railroad terminal at New York City's Pennsylvania station is a sleekly detailed beacon for commuters that—though tiny—enlivens its context of massively drab office towers (opposite bottom left). Still, a continuum readily can be seen in the firm's work underway (following pages), where, for example, a landmark post office is lightly touched and an addition to a collegiate-Gothic landmark building is assertive but not assaulting.

Kliment/Halsband is a generalist firm facing a future that many experts say will be dominated by specialists. The firm has lost jobs because they lack depth of experience in a type. "We're very good at dealing with complex sites and client issues and programs," says Frances Halsband, FAIA. The Columbia project led to other computer-science commissions, but the firm, says Robert Kliment, FAIA, doesn't have the temperament to specialize. "We never perfected the rote answer," adds Halsband. "There's a tremendous variety even within the problem of the computer-science building."

The 30-person firm is able to take on larger work since three long-term associates became partners: Alejandro Diez, AIA; Richard McElhiney, AIA; and Michael A. Nieminen, AIA. Projects range today from a 900-sq-ft visitor building for catalog merchant White Flower Farm to the post office conversion, budgeted at $217 million.

Rather than an overarching design signature there is what Kliment calls "a singular vision or cultural point of view around which people gather and contribute." He continues, "Building is the consequence of things around it," paraphrasing mentor Romaldo Giurgola.

In a world bombarded by powerful but fragmented images, is there room for a firm that thinks on the level of a site inflection or a door-stile thickness? The general public, even more than architects or the architectural press, gravitates to architectural spectacle, whether that be in dramatic form-making or in the growing fantasy-design realm. "We're all trying to get away from the building as 'just another pretty face,'" comments Kliment. But the struggle to do that, adds Halsband, "reflects broad issues in the culture. There's no common ground on styles for us to agree on what is good. The more diffuse design styles and debates become, the farther you get from common ground. How does that make good cities, or respond to clients?" Well she might ask. *James S. Russell*





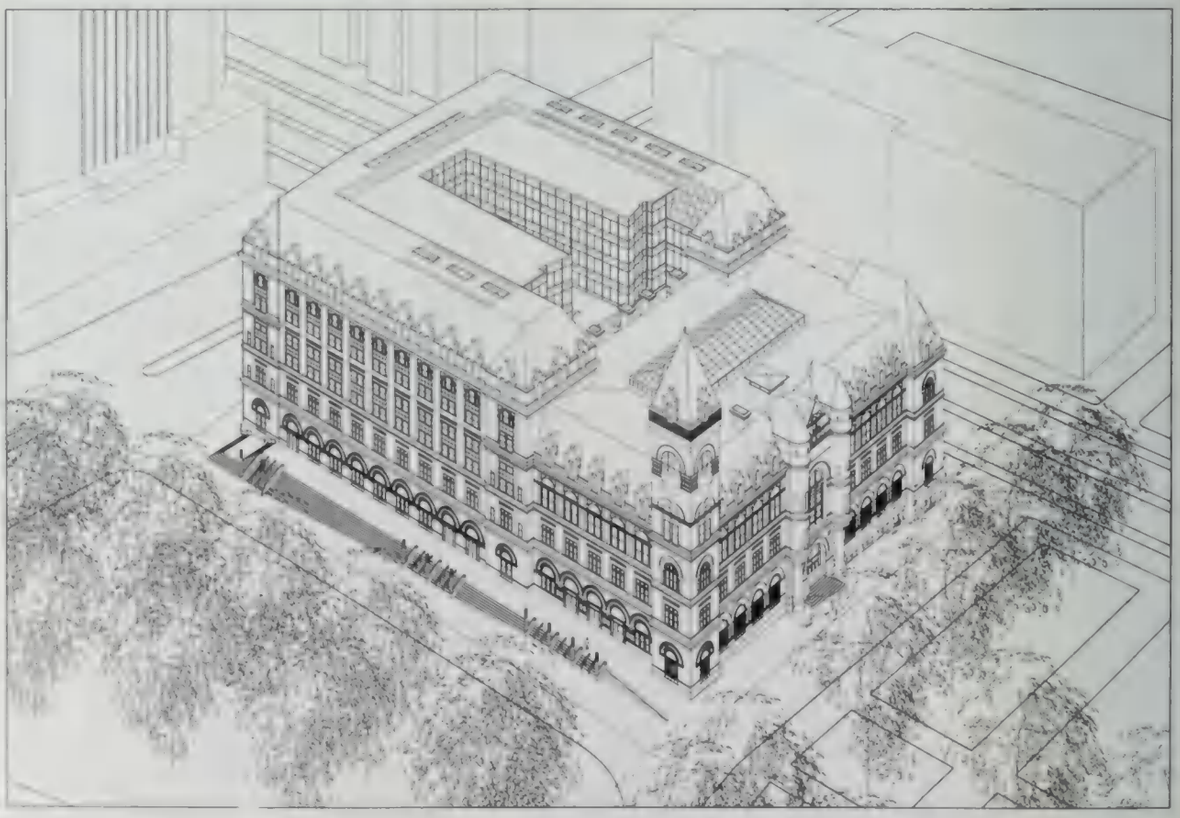
Lamont-Doherty Earth Observatory Master Plan
Palisades, New York
Owner: *Columbia University*

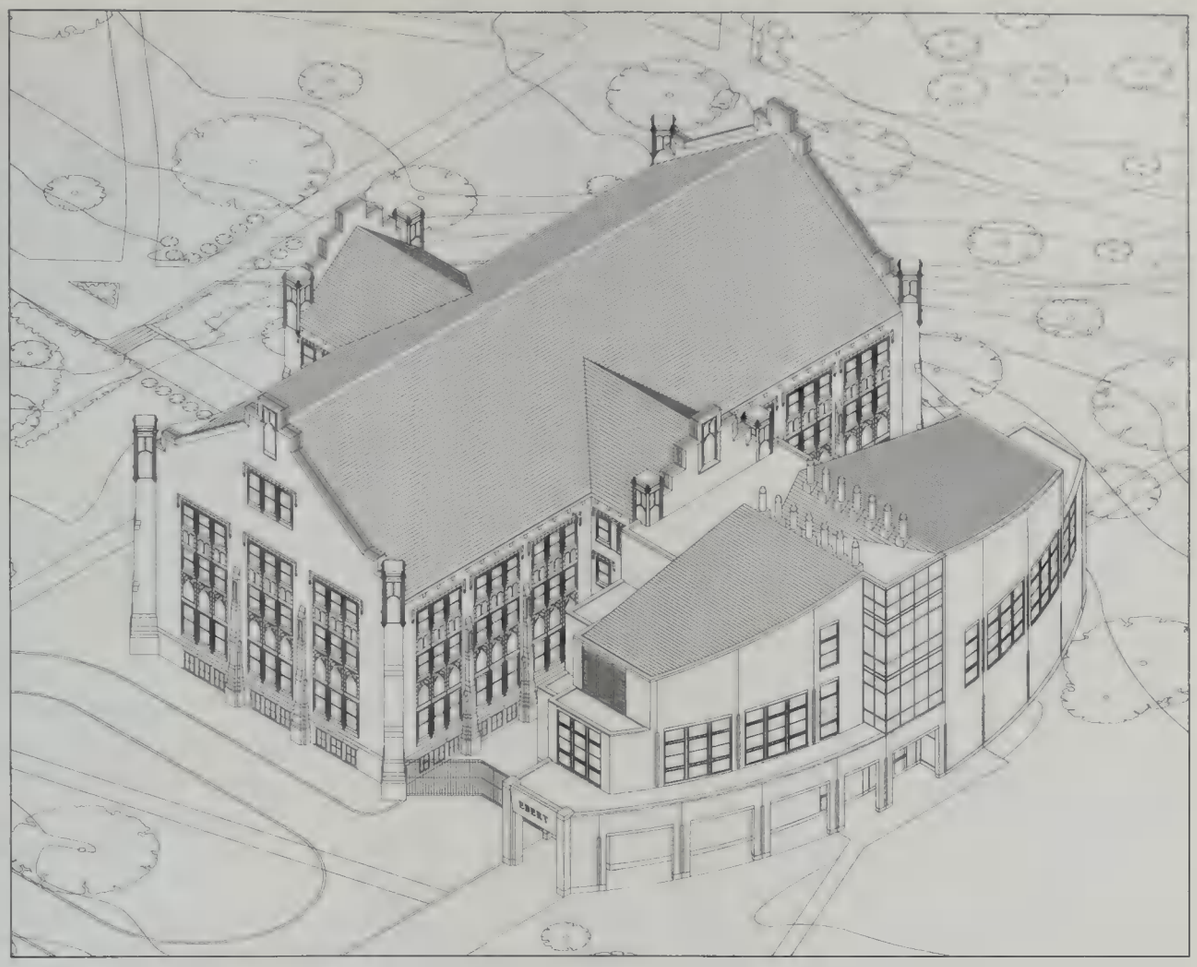
The existing campus has unsympathetic and inadequate recent buildings bumped up against historic structures in an Olmsted brothers' landscape. The master plan unites the campus through a walkable center and gathering places.

"A continuum readily can be seen in the firm's new work, where a landmark post office is lightly touched and an addition to a collegiate-Gothic building is assertive but not assaulting." —James S. Russell

United States Courthouse
Brooklyn, New York
Associated Architect: *Wank Adams Slavin Associates*
Owner: *General Services Administration*

The Brooklyn General Post Office building is being reconfigured for bankruptcy courts, offices of the U.S. Attorney, U.S. Trustee, U.S. Representative, and Post Office retail facilities. Renovation and adaptive reuse of an 1892 building and a 1933 extension are augmented by 95,000 sq ft of new space wrapping a courtyard





Severance Art Building Restoration and Addition
Wooster, Ohio
Owner: *The College of Wooster*

A former physical-education building (1911) is being converted into art studio space. A 17,000-sq-ft addition containing galleries, lecture hall, and seminar room allows the departments of art history and studio art to be united in one structure. The addition, while extending the axis and formal organization of the existing building, is scaled to the playing fields it faces.



Primary School 54
Bronx, New York
Owner: *New York City School Construction Authority*

The massing of this 82,000-sq-ft school on a tight urban site is narrow to admit light to surrounding apartment buildings. It steps down at its southern end to let direct sun hit the playground.

The richness of Louis Kahn's Exeter Library stands the test of time.

The beginning of the 1970's was not an easy moment for architecture in America. All the more remarkable the authority, the serenity, and the confidence that Exeter Library, at Phillips Exeter Academy in Exeter, N.H., still exudes. It is one of Louis I. Kahn's masterpieces, and is this year's 25-Year-Award winner. From 1967 to 1972, its period of design and construction, the country struggled to digest the racial and cultural upheavals of the 1960's; the Vietnam War and Watergate took their toll in lives and in America's faith in its institutions. Architecture was simply not high on the national agenda.

Exeter, on the other hand, seems to exist out of time. Kahn single-handedly reinvented the idea of facade by the subtlety with which the glazing and wood-clad insets were proportioned and the brick detailed. Among the genuine strokes of genius was the undercutting of what might have been an off-putting monumentality by carving away the building's mass with re-entrant corners (below).

The last years prior to Kahn's 1974 death brought forth a handful of masterpieces: Forth Worth's Kimball Art Museum; the arts complex in Fort Wayne, Ind.; the vast government center in Dacca, Bangladesh; and the Indian Institute of Management in Ahmedabad.

For the rest of American architecture, it was a strangely transitional moment. Most of the mainstream was pouring out vast new battered-concrete college campuses and corporate headquarters set in pampered landscapes, when not dabbling in the occasional urban-renewal housing scheme or inner-city daycare center. Charles Moore was beginning to move beyond houses; Richard Meier was perfecting his signature style on New York's eastern Long Island, and Venturi, Scott Brown, and Izenour penned *Learning From Las Vegas.* (That firm's built oeuvre had then rarely gotten larger than houses, either.)

The era saw John Portman's San Francisco Hyatt Regency—among the first of the atrium hotels, Arthur Erickson's building-as-bridge

The center of Exeter Library (opposite) is a space that eloquently unites Kahn's desire to recognize knowledge, institutions, and gathering places.



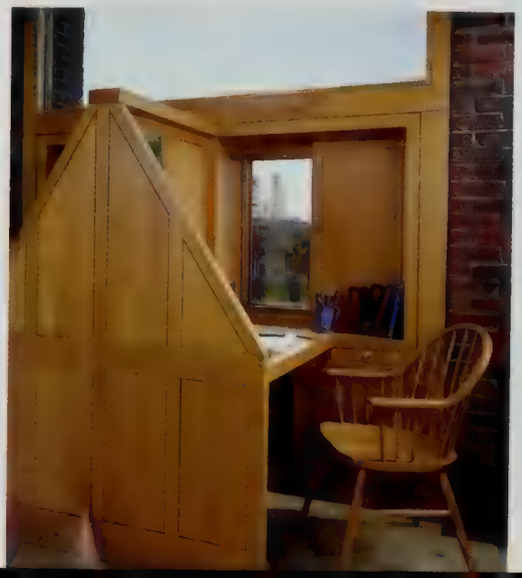




Kahn's language of materials included "structural" cast concrete contrasted with oak paneling as a membrane that clads changeable services (left) and built-ins (below).

for a university in Alberta, John Andrews's Harvard Graduate School of Design, Paul Rudolph's theatrical essays in concrete for the State Services Building in Boston and the Burroughs-Wellcome headquarters in North Carolina, Gene Summers of C.F. Murphy realized Mies van der Rohe's vision in McCormick Place in Chicago; Gunnar Birkerts opened the Federal Reserve Bank in Minneapolis.

Exeter [illegible] building to win a 25-year award, but architects, including [illegible]arinen; and Skidmore, Owings & Merrill have also [illegible] or more times, fueling criticism that too few architects [illegible] on the list. Yes, Exeter is a safe choice, but it is one that [illegible] richness of conception and execution seem [illegible] than diminished by time. Few other buildings can make that [illegible] *James S. Russell*





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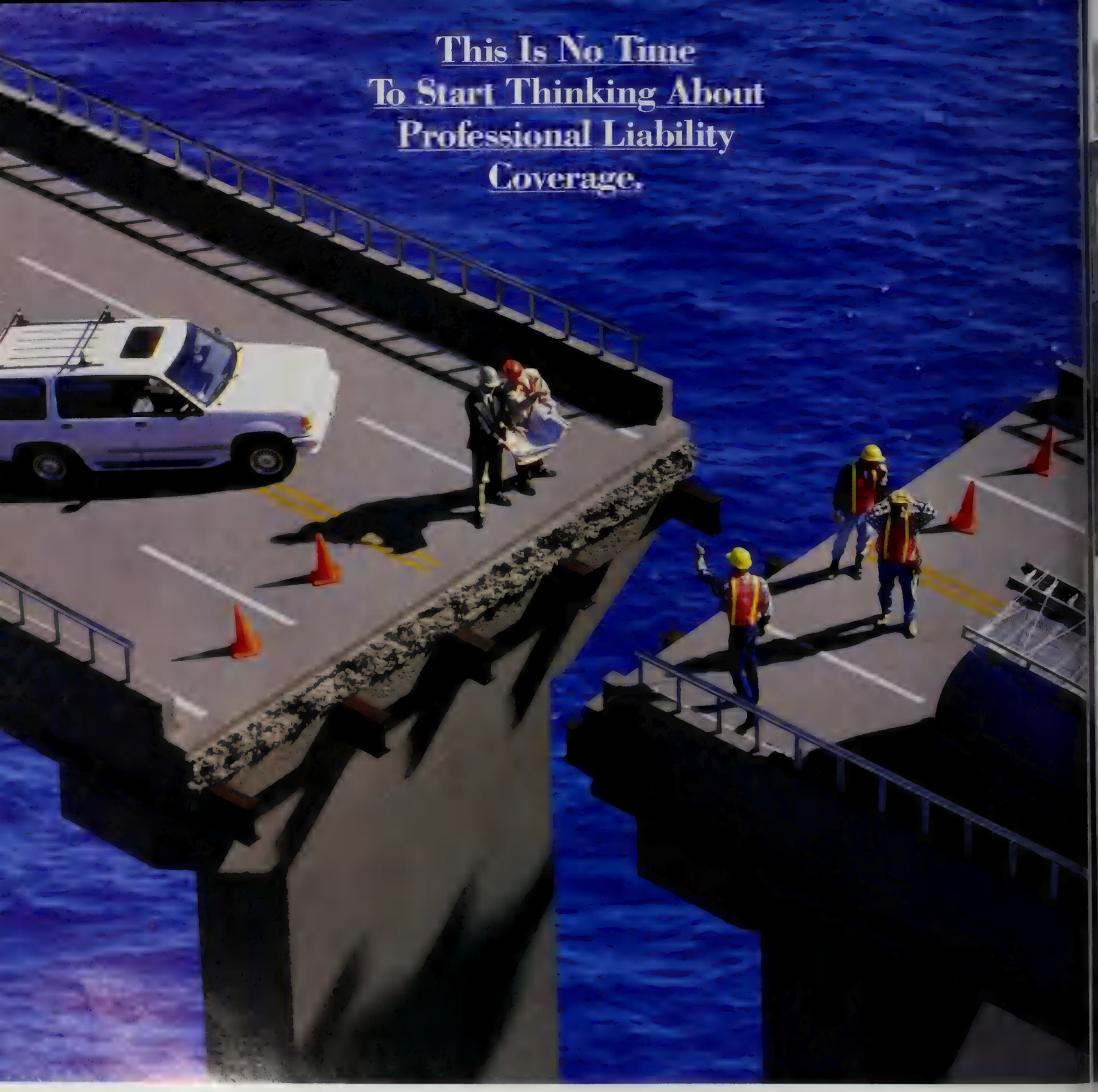
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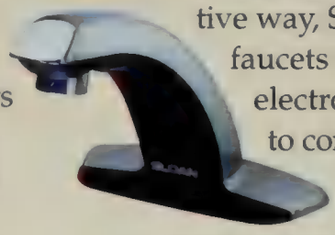


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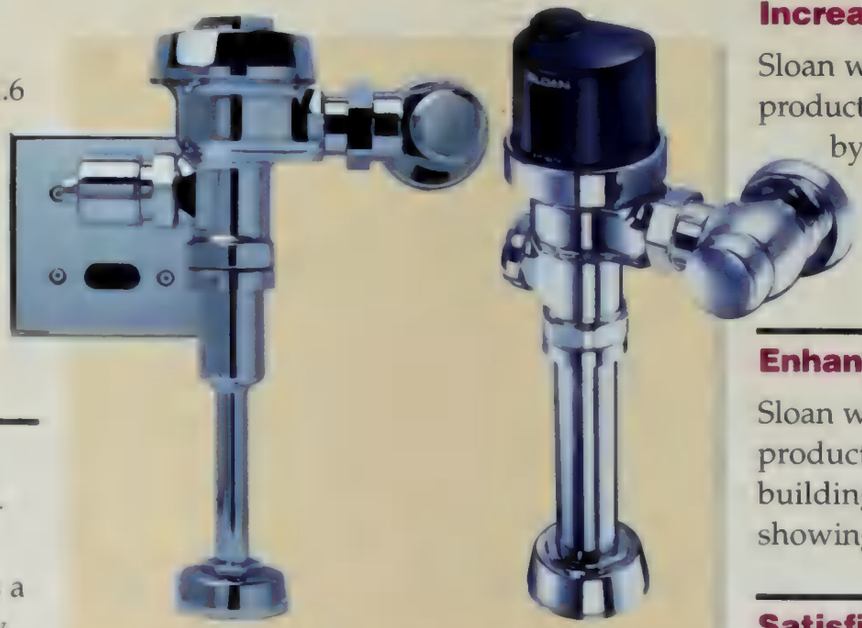
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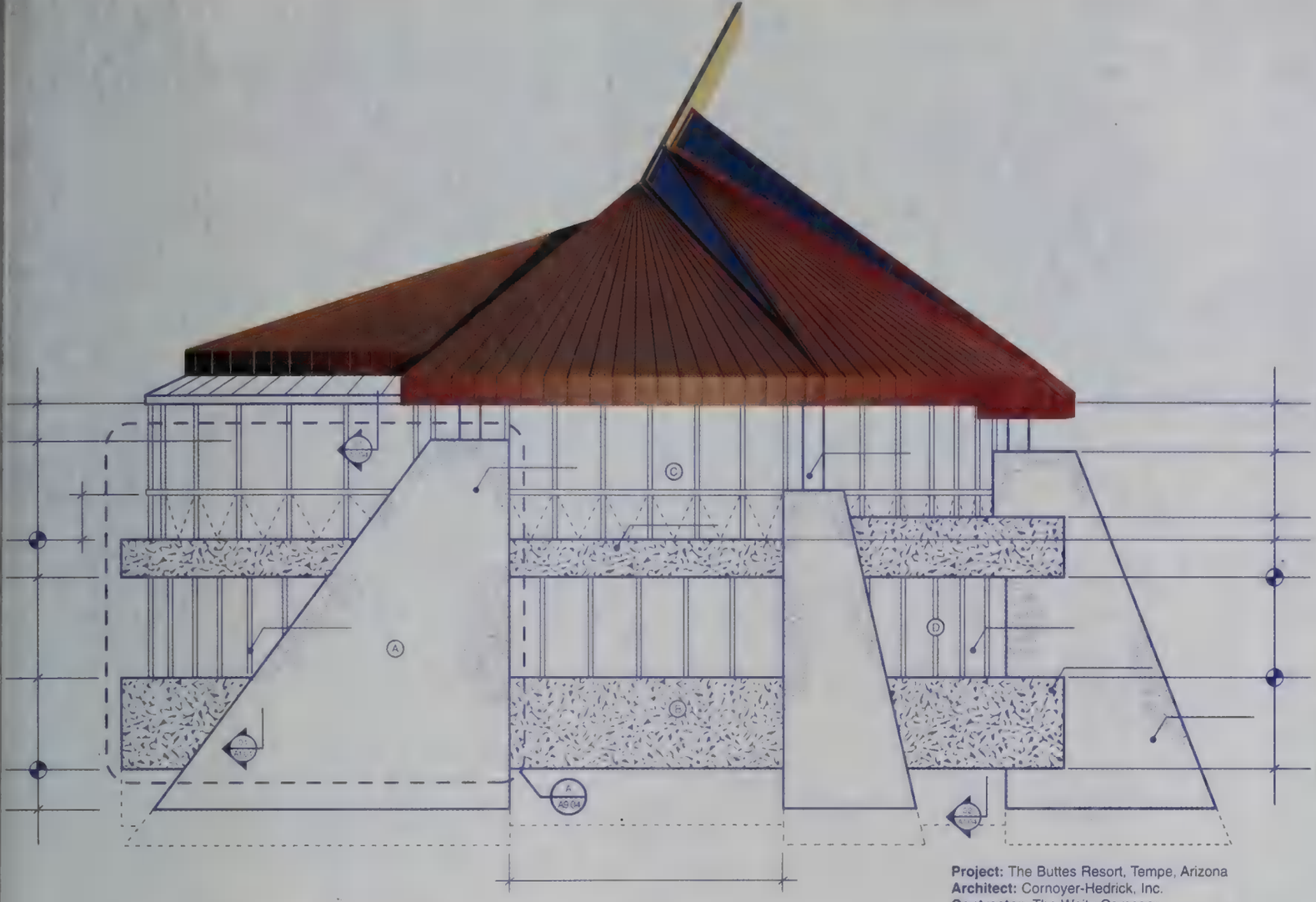
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ANALYSIS: In Singapore, Stirling and Wilford's TEMASEK POLYTECHNIC serves as a valedictory to a prolific career.



The central plaza (left) is a popular hub for students. A covered area below one of the classroom blocks (opposite) offers a cool place to relax.

by Clifford Pearson

Not everyone exits with such a grand performance. But James Stirling was no ordinary architect and it seems only fitting that the hard-to-label British designer finish his career with an entire campus of buildings in a country that is reinventing itself at warp speed. Given a 75-acre greenfield site and an expansive program of educational, administrative, recreational, and residential facilities at Temasek Polytechnic in Singapore, Stirling and his long-time partner Michael Wilford were able to address most of the key issues that have informed their work since the early 1960's, while at the same time explore new approaches and forms. As a result, Temasek seems to both sum up a prolific career and show where it was going at its untimely end. (Stirling died in 1992 at the age of 66.)

Singapore's third polytechnic, Temasek is a veritable "city of learning" for 11,400 students, 1,000 academic staff, and 500 support staff. (A fourth polytechnic, designed by Gwathmey Siegel & Associates, is now under construction.) Divided into four schools—business, engineering, design, and information technology and applied science—Temasek offers hands-on, practical education to the people who will be technicians and middle-level managers in Singapore's export- and information-driven economy. After passing their "O" levels (the equivalent of high school in the United States), students in Singapore have three educational options: trade school, polytechnic, or junior college and then university. The three-year course of study offered by the large polytechnics is becoming increasingly popular and now attracts about 40 percent of the country's O-level graduates.

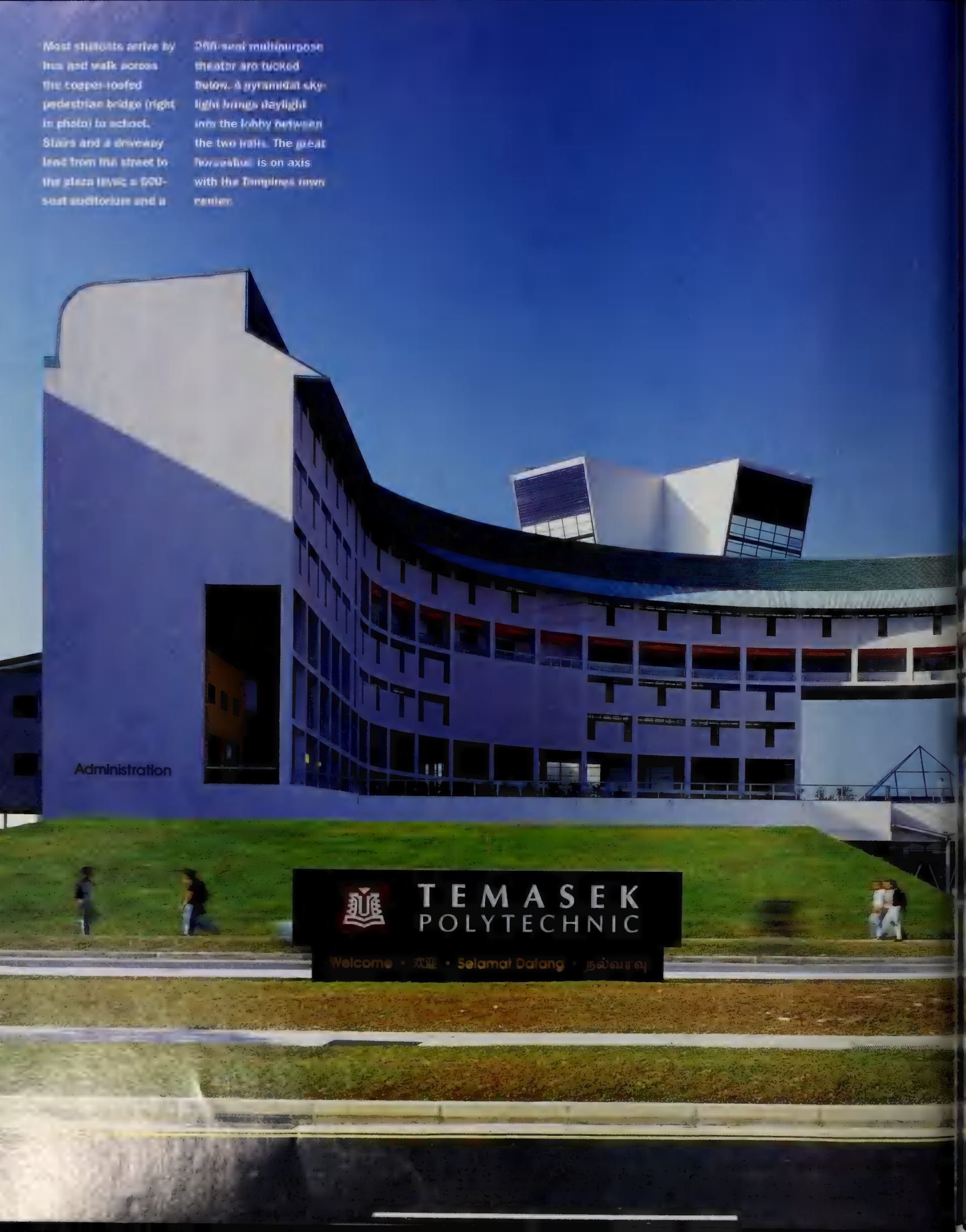
Set between the Bedok reservoir and the rapidly growing Tampines new town on the eastern end of Singapore island, Temasek offered Stirling and Wilford a clean slate on which to write. Nothing here is more than 10 years old. The mid-rise, government-built housing blocks and the six-lane Tampines Avenue One facing the school on the north provide an essentially generic modern context. To the south is the reservoir. Before being selected as the Temasek site, the property had been used by the Singapore Housing Development Board for stockpiling sand needed for construction. "It offered us a marvelous opportunity to deal freely with some of the issues of architecture and urbanism that we had been working with," says Wilford.

These issues included clearly expressing a project's organization, its various functions, and its circulation. Stirling and Wilford dealt with these issues by breaking large compositions into smaller components, creating strong building forms, using striking (sometimes even electric) colors within building envelopes that are neutral in hue, and contrasting solids with voids and building mass with building membrane. Not every project the architects worked on addressed each of these issues, and over the years the superficial "style" of projects changed and evolved depending on the context and demands of the program, says Wilford.

The techno-Modernism of the Leicester University Engineering Building of 1963, for example, was replaced in the 1980's by the idiosyncratic brand of Postmodernism that marked the Neue Staatsgalerie in Stuttgart, Germany, and the Performing Arts Center at Cornell University [RECORD, October 1989, pages 98-107]. But the last project that Stirling saw completed, the sprawling B. Braun manufacturing complex in Melsungen, Germany [RECORD, October 1992, pages 74-83], seemed to announce a return to the firm's Modernist roots. The design of Temasek Polytechnic reinforces that impression. Wilford states, however, "We never moved away from 'true Modernism.' We were just waiting *(text continues)*

Project: *Temasek Polytechnic, Singapore*
Architect: *James Stirling Michael Wilford and Associates—James Stirling, Michael Wilford, principals; Laurence Bain, Paul Barke, Russell Bevington, John Bowmer, Mark Bunting, Chris Chong, John Dorman, Frances Dunne, Christopher Dyson, Liam Hennessy, Charlie Hussey, Andrew Pryke, Peter Ray, Leandro Rotondi, Charlie Sutherland, Kit Wallace, Karen Waloschek, Gareth Wilkins*
Associate Architect: *DP Architects Pte*
Engineers: *Ove Arup & Partners (structural/mechanical/electrical); Ewbank Preece Engineers (mechanical/electrical)*
Consultants: *PDAA (landscape); [illegible] Acoustics (acoustics)*
Project Manager: *Public Works Department, Singapore*

Most students arrive by bus and walk across the copper-roofed pedestrian bridge (right in photo) to school. Stairs and a driveway lead from the street to the plaza level; a 600-seat auditorium and a 260-seat multipurpose theater are tucked below. A pyramidal skylight brings daylight into the lobby between the two halls. The great horseshoe is on axis with the Tampines town center.



Administration



Seen from the north, the campus stretches out for nearly a kilometer (opposite). Classroom blocks are memorable forms on the landscape (below).





SITE PLAN

1. *Plaza*
2. *Administration*
3. *Library tower*
4. *School of Engineering*
5. *School of Information Technology and Applied Sciences*
6. *School of Business*
7. *School of Design*
8. *Student center*
9. *Main canteen*
10. *Triangular garden*
11. *Swimming*
12. *Faculty club*
13. *Staff housing (three towers built)*
14. *Boat house (unbuilt)*
15. *Sports hall*

for the right opportunity," to use it again. Like Melsungen, Temasek offered an expansive program and a context-free site that allowed the architects to use a Modern vocabulary, says Wilford.

Responding to a tropical climate

What is new at Temasek is a strong response to the local climate. Rain and heat are constants in Singapore, just three degrees latitude above the equator. By carving a five-meter (16.5-ft) wide arcade within a horseshoe-shaped central administration building and connecting all buildings with covered pathways, the architects created protected outdoor spaces that also reinforce one of the firm's favorite themes—circulation. Covered canteens open to views of and breezes from the reservoir provide another kind of indoor-outdoor space, as do the concourses lined by brightly colored columns that run through each of the campus's four schools. The strong sun helped shape the buildings' fenestration, limiting glazing in most rooms to a band of clerestory windows and a vertical strip (or two) of glass. Curtain-wall glazing is used sparingly, most prominently on the library tower, but also on a portion of the design school.

The local associate firm, DP Architects, as well as the client's building committee kept the issue of climate at the forefront of discussion throughout the project, says Toh Sze Chong, a DP associate who worked on Temasek. "We had to explain the concept of horizontal rain," says Peter Cremer, an engineer who works for Temasek as its building manager. Although DP's primary responsibilities were for construction documentation and supervision, the Singapore-based firm was involved from the very beginning of the project and sent a team of architects to Stirling/Wilford's office in London for schematic design.

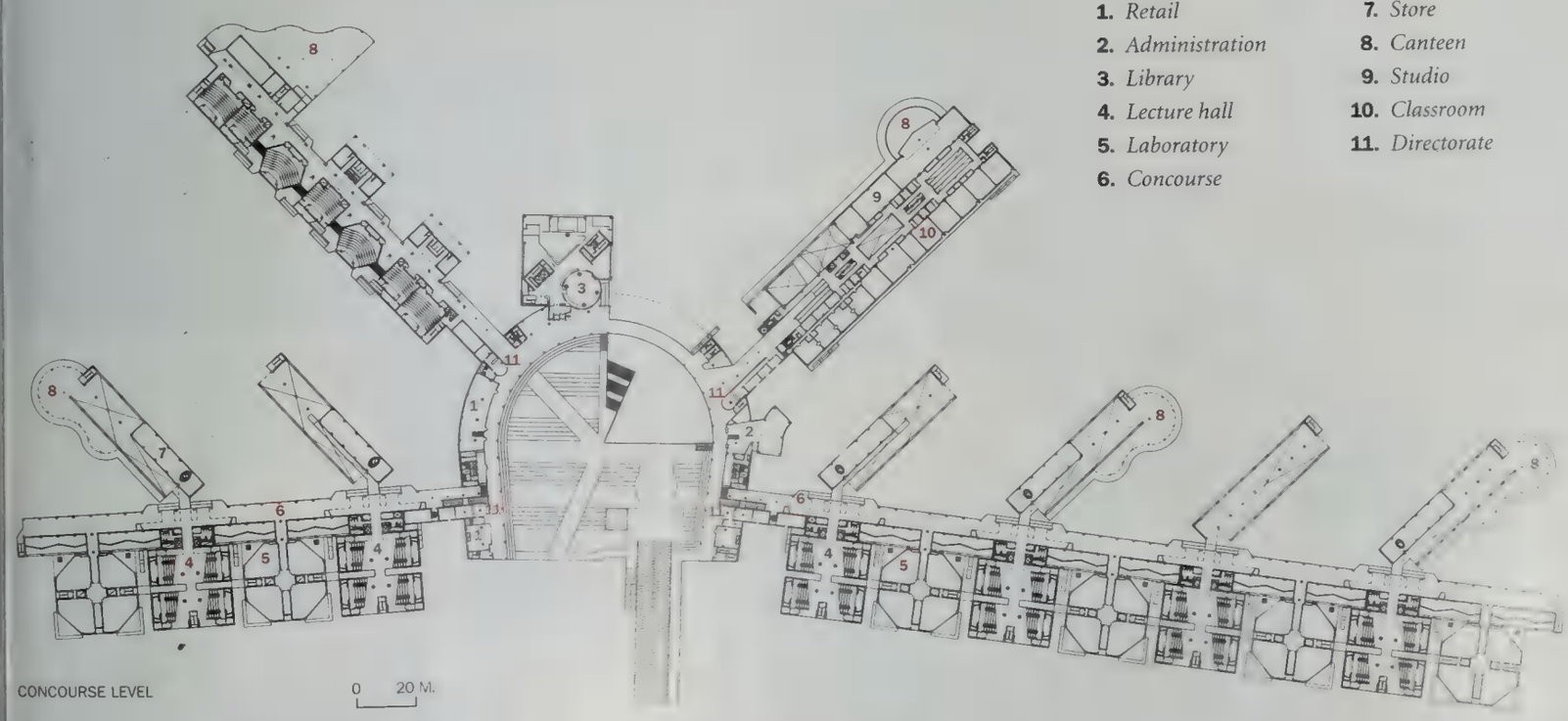
The architects, however, didn't want to turn their concern for climate into an architectural fetish. "The buildings don't sport louvers all over the place to screen the sun," says Wilford. "We thought we'd be a little more subtle in the way we express our response to the tropics."

Responding to the local culture was more problematic. Not only was there little architectural context nearby, but "the students have a global, modern outlook," says Wilford. Discussions with the client led the architects to understand the role of snacking as a social activity and see there was little demand for overtly Chinese or Singaporean elements. In the end, Stirling/Wilford realized that the local culture was a youth culture and that by creating a colorful, engaging environment with plenty of places for students to gather and, especially, to eat, the firm was meeting the needs of the users. Conversations with Temasek students confirm the validity of this approach. Jasper Leung, a second-year student studying information technology, says he spends most of his spare time at the various canteens and that he likes the way the buildings seem "young."

Despite its size, Temasek is an easy place to get around and to understand on an organizational level. A great horseshoe-shaped administration building is the central hub from which each of the four schools

WITH 57 LECTURE HALLS AND A KIT-OF-PARTS APPROACH, "THE BIGGEST CHALLENGE WAS THAT OF REPETITION," SAYS WILFORD.





1. *Retail*
2. *Administration*
3. *Library*
4. *Lecture hall*
5. *Laboratory*
6. *Concourse*
7. *Store*
8. *Canteen*
9. *Studio*
10. *Classroom*
11. *Directorate*


4.5m





Good connections: the library tower meets the horseshoe (left) and a classroom block meets a school spine (above).

extends as a straight-lined spoke. A two-story-high arcade wraps around the horseshoe providing access to stores, the 11-story library tower, and the "directorate" or administrative offices of each of the four schools. Upper floors of the horseshoe house administrative offices. Held within the arms of the horseshoe is a landscaped plaza at the concourse level and two large auditoria tucked below. "We wanted a focal point for the entire campus, a place where all of the students could mingle," explains Lily Teo, Temasek's director of finance, development and estates, who was the project director for the client during design and construction.

Using a kit of repetitive parts, Stirling/Wilford designed each of the schools as a series of blocks attached to a tall, covered concourse. Two-story lecture halls are stacked to form one kind of block, while laboratories with classrooms above comprise another kind. More classrooms and faculty offices are housed in wings that angle from the school spine. Each school has its own curvilinear canteen spreading out toward the rolling landscape. Expansion can be accommodated by simply extending a particular school's spine and adding more lecture, laboratory, or classroom blocks as needed.

A consistent vocabulary and a uniform pale lilac color for exterior surfaces holds the entire composition together visually. Only within the general building shell do the architects inject bright colors and carve away a variety of spaces. And while all four schools have many of the same parts, each has its own set of particulars. For example, the design school is the only one with a central skylit spine and the business school dispenses with the blocks of labs because the curriculum doesn't call for them. And while the colors used for the eye-catching columns on the concourse level of each school are the same, the sequence of colors is different for each.



The arcade that wraps around the horseshoe-shaped administration building provides access to stores, the library, and the directorates of each school.

"The biggest challenge was that of repetition," states Wilford. For example, there are 57 lecture halls, each with the same basic design, though varying sizes. "If you're not careful, such repetition can produce an institutional, characterless feeling." Providing enough variation and articulating each school architecturally helped deal with this issue.

Breaking the problem of scale down to size

"Another problem was handling the issue of scale," explains Wilford. The architects' response was to make the organization of the campus as easy to understand as possible and to "break each school into its component parts and articulate them architecturally." By placing more intensively used spaces closer to the main circulation routes and more privately used spaces higher up, using [illegible] to identify different kinds of floors, and offering plenty of views [illegible] to help orient people, the architects provided plenty of wayfinding [illegible].

Although Temasek [illegible] nearly a kilometer (0.62 miles) along Tampines Avenue One, no [illegible] school is more than a five-minute walk from the central administration building. And since students can go to classes, lectures, and labs, [illegible] professors' offices, and eat their meals all within the confines of their individual schools, there is little need to dash from one place to another. "I expected a crush of people moving around between classes," says Creamer. "But it doesn't happen because the circulation is really quite efficient."

All of the buildings are poured-in-place, concrete-frame structures with brick-panel infill walls, as is typical in Asia. Because they are repeated so often, floors are precast-concrete slabs. Steel is used primarily to support the pre-patinated copper roofs found on all buildings on campus. The architects and engineers purposefully kept the structural system simple so the large project could move forward quickly.

Indeed, speed was a critical demand of the project. After being hired in November 1990, Stirling/Wilford had only a few months for schematic design and then only about six months for design development. By November 1991, the plans were approved. Construction began in April 1992 and the entire campus—including all four schools, the central administration building, the student center, all the athletic facilities, three towers of staff housing, and the faculty club—was completed by August 1995. "The most difficult aspect of the project was the fast-track process," states Temasek's Teo. *(text continues)*

Temasek Polytechnic was established in 1990, but operated out of temporary facilities until the fall of 1995 when its Stirling/Wilford-designed campus opened its doors. With the Singapore economy relying less on manufacturing and more on high technology and information services, the need for polytechnical schools has grown rapidly in the last decade. Even before the new Temasek complex was completed, another giant polytechnic (designed by Gwathmey Siegel & Associates) was begun.

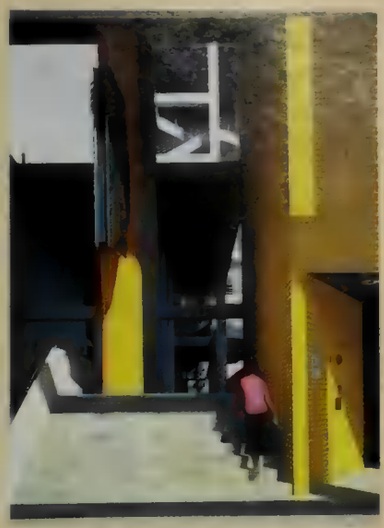
Reflecting his position as both educator and executive, Dr. N. Varaprasad, the school's principal and chief executive officer, was a strong leader with whom the architects could work. "He was a fantastic client," remembers Michael Wilford. "He was always challenging us and telling us to go ahead." Wilford explains that Varaprasad "was concerned with issues such as maintenance and cost, but he was also very interested in the architectural design."

Although Varaprasad wielded enormous authority in setting the school's program and direction, another key player was a building committee that included the chief architect and planner of Singapore's Urban Redevelopment Authority, the state's Housing Development Board, and the directors of the four schools that comprise Temasek.

While the two polytechnics that had been built before Temasek were designed by local architects and grew piecemeal over time, Singapore decided to take a different approach for the next two schools.

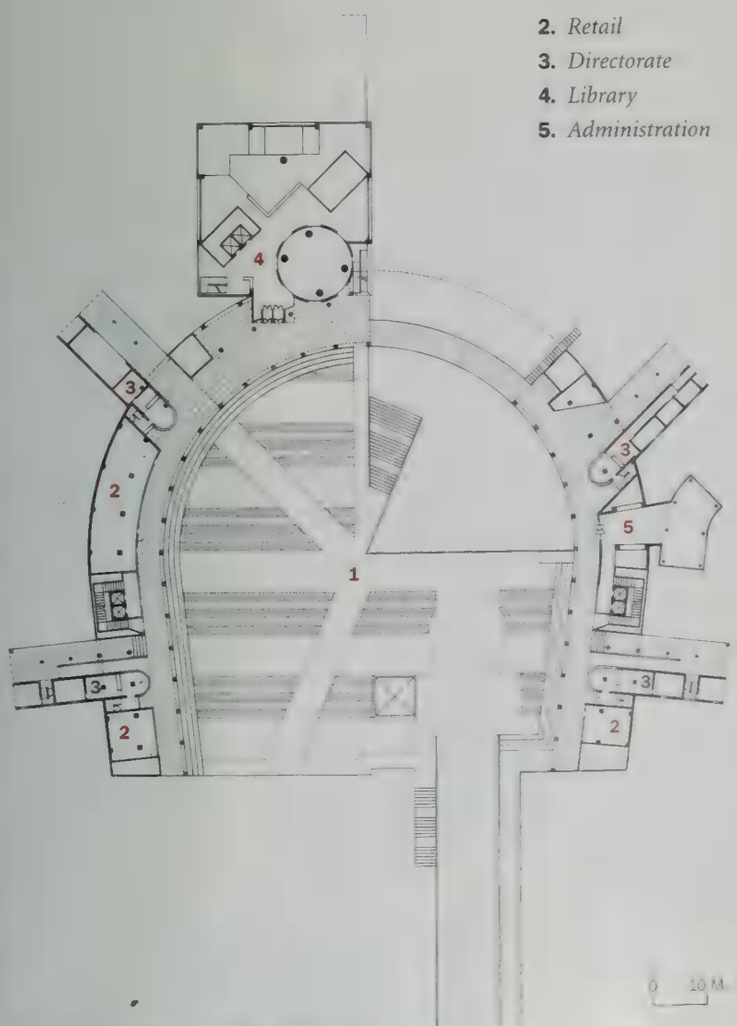
"We wanted a joint venture between a local firm and a world-renowned architect," explains Lily Teo, Temasek's director of finance, development, and estates, who was heavily involved in the building project. "We put together a short list of international architects and looked at their track record with educational institutions."

Even though it was building an entire campus all at once, Temasek was always thinking of expansion, says Teo. Indeed, the first addition—a new laboratory block for the engineering school—is already under way.



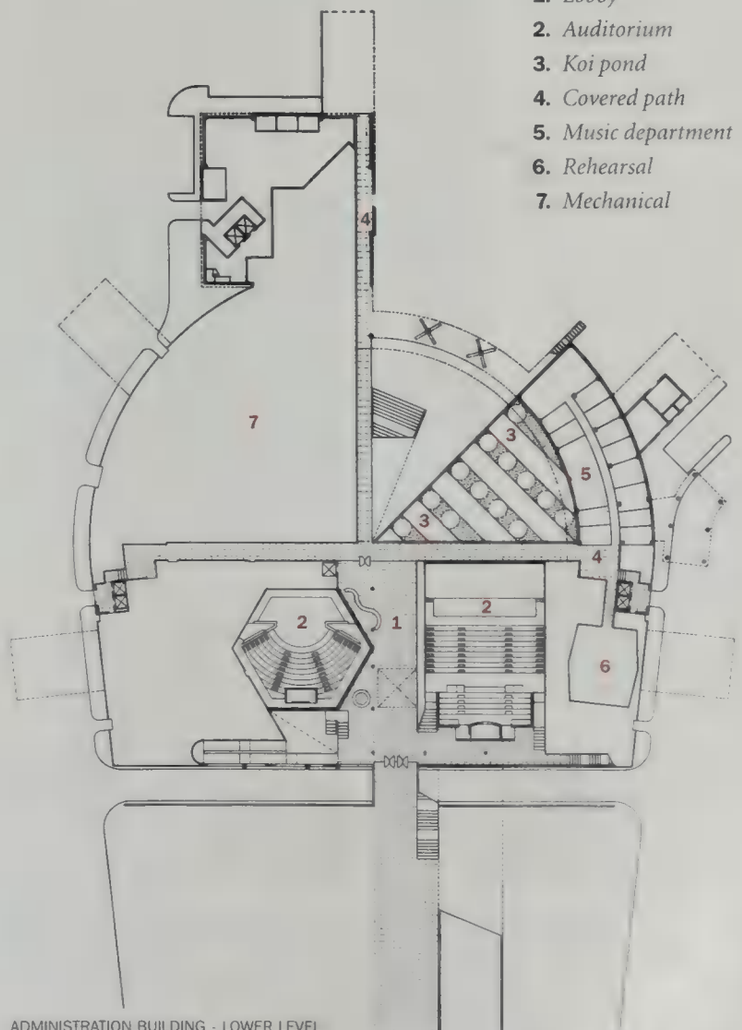
The concourse of each school extends from the central administration horseshoe.

1. *Plaza*
2. *Retail*
3. *Directorate*
4. *Library*
5. *Administration*

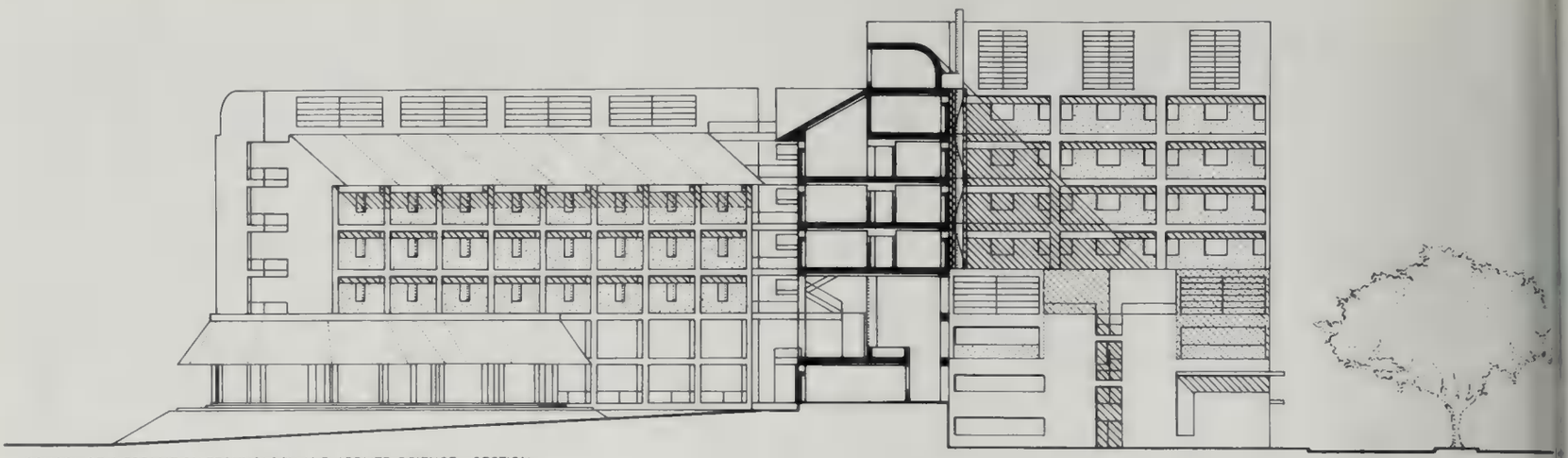


ADMINISTRATION BUILDING - CONCOURSE LEVEL

1. *Lobby*
2. *Auditorium*
3. *Koi pond*
4. *Covered path*
5. *Music department*
6. *Rehearsal*
7. *Mechanical*



ADMINISTRATION BUILDING - LOWER LEVEL

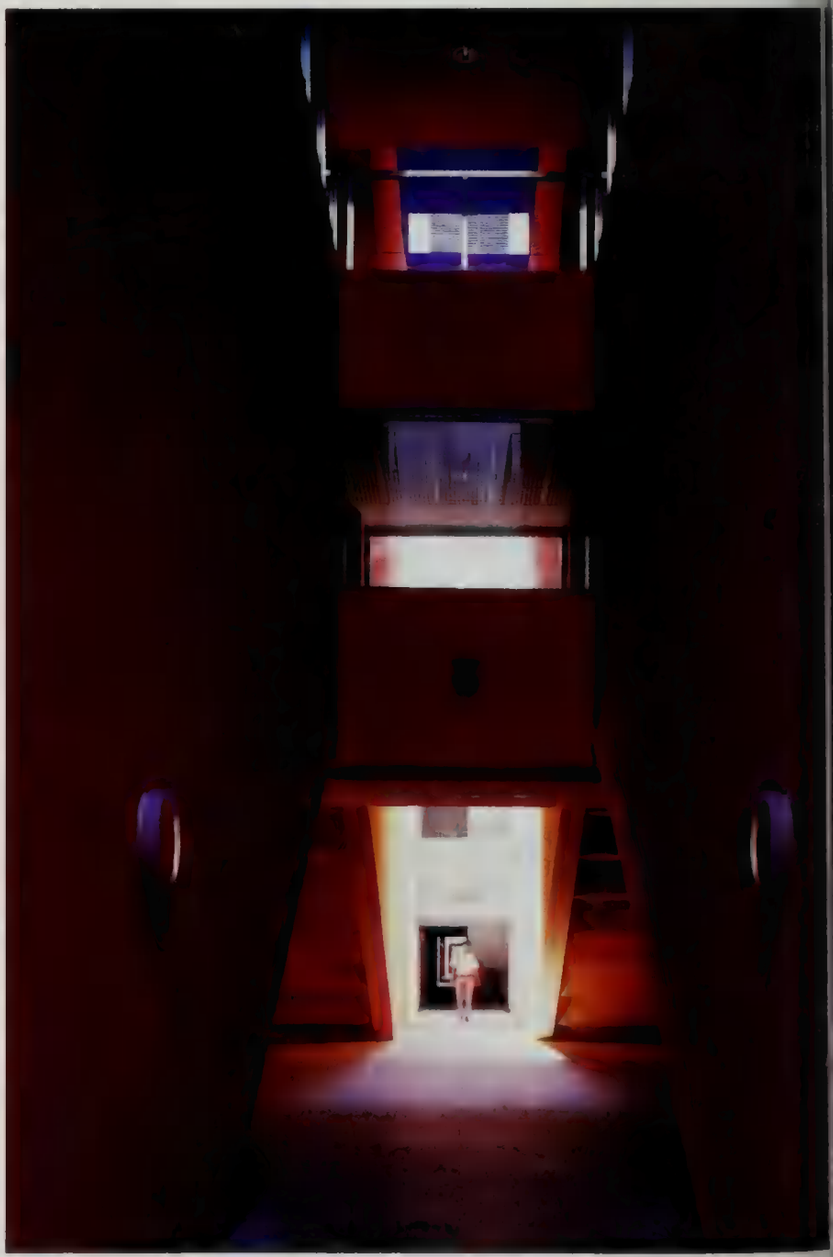


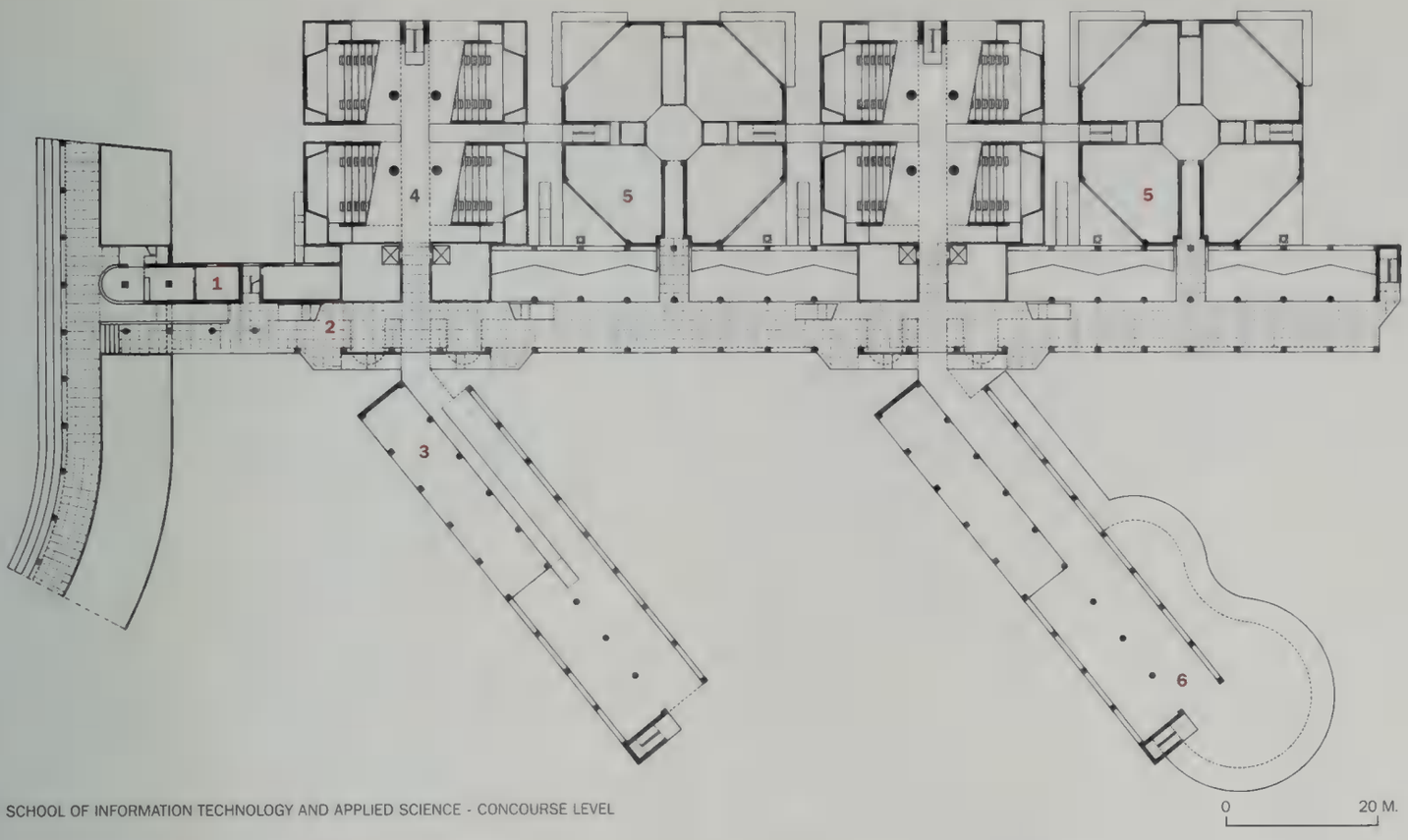
SCHOOL OF INFORMATION TECHNOLOGY AND APPLIED SCIENCE - SECTION

Paired two-story-high lecture halls are stacked in blocks off each school's spine (below left and right).

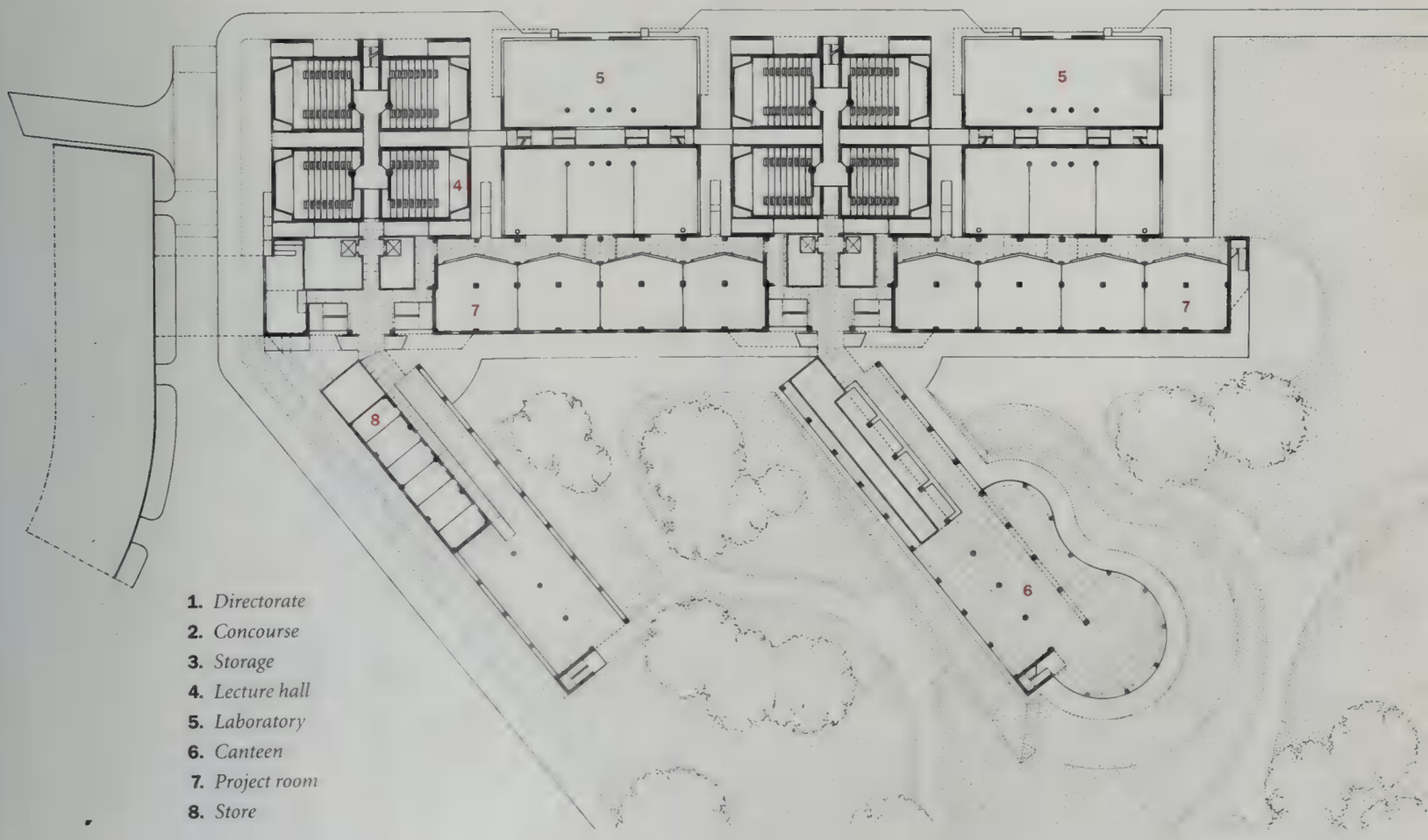
School of Information Technology and Applied Science (opposite) shows the key elements of each school.







SCHOOL OF INFORMATION TECHNOLOGY AND APPLIED SCIENCE - CONCOURSE LEVEL



1. *Directorate*
2. *Concourse*
3. *Storage*
4. *Lecture hall*
5. *Laboratory*
6. *Canteen*
7. *Project room*
8. *Store*

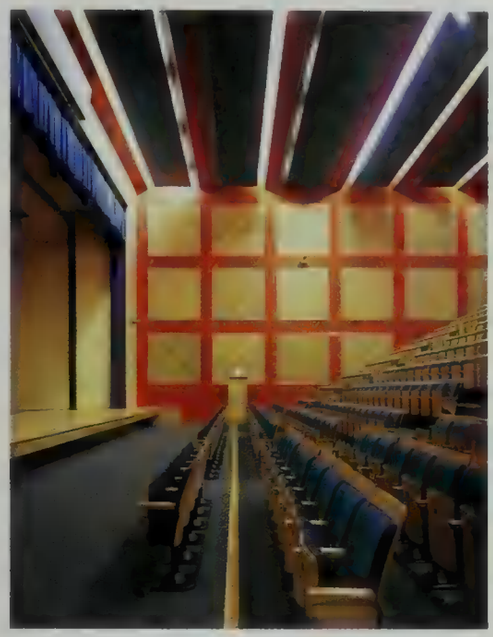
SCHOOL OF INFORMATION TECHNOLOGY AND APPLIED SCIENCE - GARDEN LEVEL



The first floor of the library has an exhibit area behind a curved yellow wall. The library is organized by floor into three collections (business, [illegible], and design).



The ends of the 600-seat auditorium (below) are shear walls supporting the plaza above. Each school has at least one canteen (left) offering views to the reservoir.



Stirling/Wilford dealt with the time pressure by setting up teams of designers in their office to work on different buildings simultaneously. This allowed the architects to move forward on the design of the entire campus all at once. Another aspect of this full-frontal assault on the project was the deployment of a small army of designers. At one point, there were about 60 people working on the project—about 15 in Stirling and Wilford's office and 45 at DP Architects.

Understanding the limitations of the budget and schedule was an essential part of the project. "Poured concrete is the easiest and cheapest way to build in Singapore and we just accepted that," explains Wilford. Standardized designs and uniform approaches were employed for most of the common components—such as laboratories, lecture halls, classrooms, stairs, and windows—so decisions didn't have to be made at every turn. But the most public spaces and elements—the promenade around the horseshoe, the concourses in each of the schools, the canteens, and the main auditoria—received more lavish attention. Bright colors, eccentric shapes, and high-grade materials draw attention to these places, effectively using the less expensive materials and more standardized designs of the rest of the project as quiet foils.

To reduce energy consumption, almost all of the main circulation areas—whether corridors, concourses, or stairs—are protected from the sun but naturally ventilated. Lecture halls, laboratories, classrooms, offices, and stores, though, are air-conditioned. A central chilled-water plant supplies all of the buildings, which have their own air handling units under their roofs and provide forced air into interior spaces.

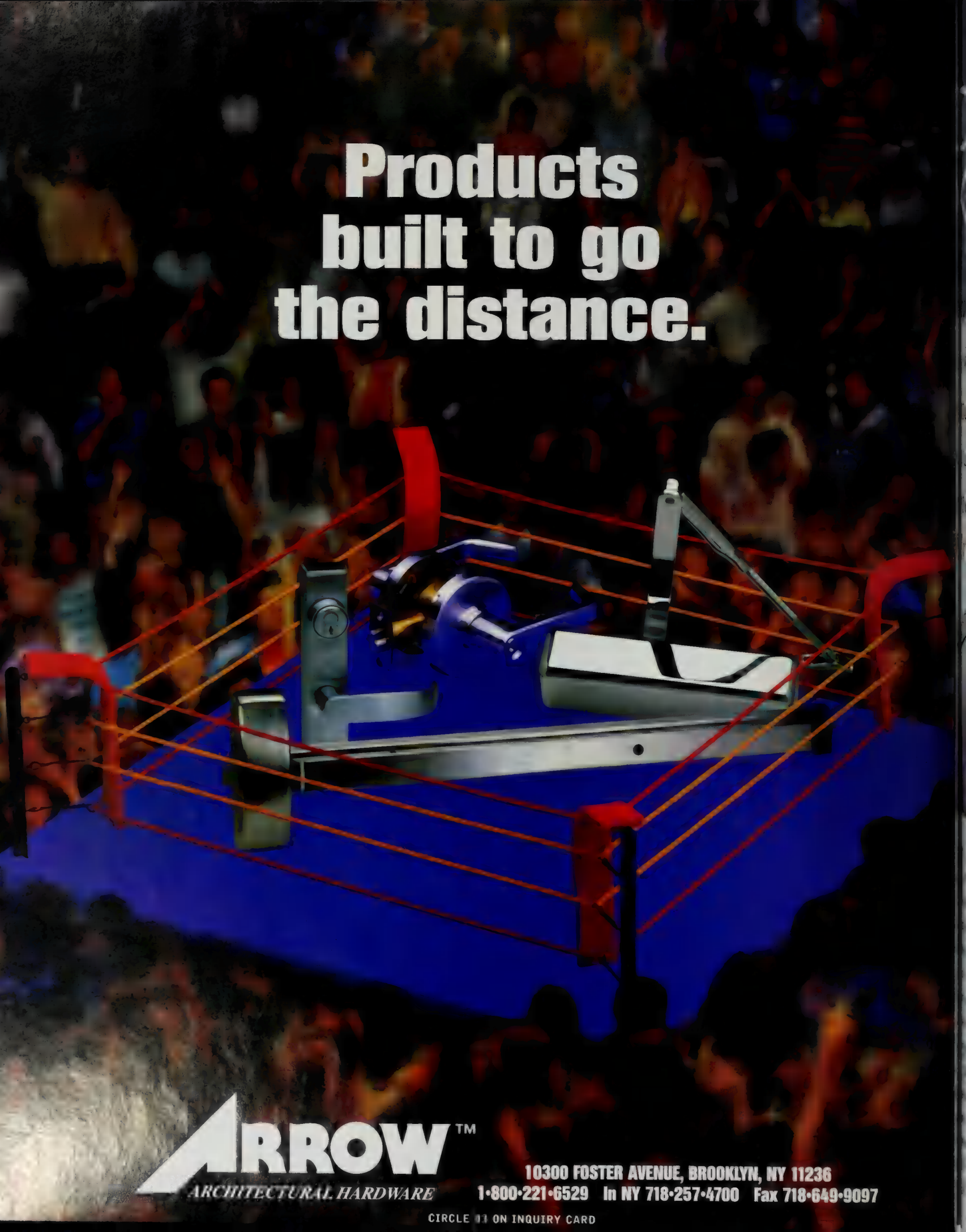
Conceived as a grand design in a tropical landscape, Temasek Polytechnic exhibits a range of strategies in dealing with outdoor spaces. On the north, where it faces Tampines Avenue One and the rapidly growing new town of Tampines, the campus presents an urban edge of parking lots shaded by rows of trees. Beyond this, the school greets visitors and students with its great horseshoe plaza, a gesture that is both formal and welcoming. The patterned plaza, which combines paved and green areas, was meant to be seen from above—from the administration building—as well as enjoyed on the ground, says Wilford.

An enormous "window" cut through the administration building offers views of the triangular garden and the reservoir beyond, connecting the front of the campus to the back. The most formal of all the outdoor spaces, the triangular garden slices through the landscape with a series of open and shaded areas. Between the various buildings, plantings are dense (or will be when they mature), but get more open and grassy the farther they are from the built world. "We developed a hierarchy of landscaping to reinforce how the open space is to be used," explains Wilford. At one end of the hierarchy are the formal gardens and central plaza, while at the other end is the rolling parkland near the reservoir. Some pieces of the landscaping scheme, however, work better on paper than they do in reality. The triangular garden, for example, provides too little shade in the hot climate for anyone to use and ends up being more a geometric conceit than a pleasant feature.

James Stirling didn't live to see Temasek completed, but he was involved in the project throughout the design phase and into working drawings, says Wilford. "He was there all the way." ■

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CIRCLE 44 ON INQUIRY CARD



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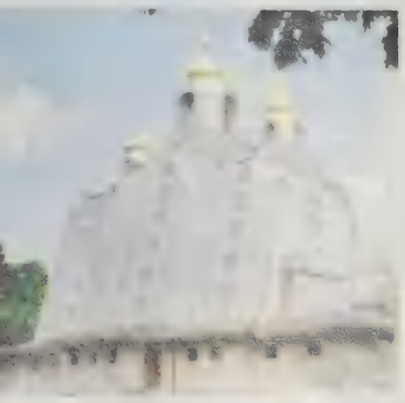
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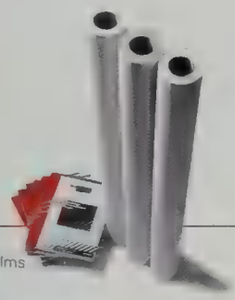
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CIRCLE 47 ON INQUIRY CARD

Saving the **Soul** of Architectural Education

FOUR CRITICAL CHALLENGES FACE TODAY'S ARCHITECTURE SCHOOLS



by Lee D. Mitgang

An emotional, often-painful clash is taking place at architectural schools across the country amid growing doubts over whether the traditional educational environment is preparing students for a rapidly changing world outside. A number of schools have made valiant progress in connecting what they teach to the diverse communities they serve. And at its best, the design studio is getting long overdue recognition on some campuses as a model of excellent learning.

Still, at the very moment when the profession badly needs more flexible, worldly, empathetic, and diverse graduates, too many schools remain wedded to shopworn traditions and curricula that glorify a single model of architect-as-designer, give short shrift to liberal studies, offer only brief nods to non-Western history and theory, neglect the rich potential of computer technology, and stress competition far more than teamwork.

Visits to numerous campuses, discussions with scores of students, educators, regulators, and practitioners, as well as an examination of a dozen accreditation reports prepared during the 1996 academic year, have convinced me that while the focus of the debate over architectural education has often been on the bitter divisions between schools and the world of practice, the more alarming gap is the one dividing both schools and the profession from the needs of the public which architecture could so effectively address.

The time has come for educators and practicing architects to close ranks around addressing four of architecture education's toughest challenges, each essential to the goals of leading the profession to a future of greater relevance and responsibility.

Use computers to connect students to a world of viewpoints

If there's a single symbol of the clash between past and future in architecture education, it's the computer.

The struggle, or at least one aspect of it, plays out each day at student Wes Harp's studio workstation at Mississippi State University's School of Architecture. Recently, Wes was designing an observation

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tower, cafe, and dock at a site on the Tennessee-Tombigbee Waterway, using Form.Z CAD software on his laptop, which the school requires every second-year student to buy. But Wes also had, nearby, a cardboard model that he says gives him a feel for the site he can't get on a computer screen. So even at Mississippi State, a national leader in high-tech design, faculty and students cling to the drawings and models that generations of students have lovingly crafted and that, for many, still come closer than computers can to revealing architecture's deeper meanings and textures.

Schools may be right to grumble that, too often, the profession is turning graduates into "CAD jockeys." Students and faculty are also right to insist that computers are an enrichment tool, not a replacement for traditional studio drafting and modeling. They're right to be skeptical that computers, by themselves, can turn "bad" designers into "good" ones. It's also true that the purchase, maintenance, and updating of computer hardware and software, let alone faculty training, are expensive new burdens beyond the means of some schools.

Still, 25 years into the technology age, it borders on educational malpractice that so many faculty members have yet to master computers well enough to teach it comfortably in studio. At many programs, one or two faculty continue to carry much of the burden as "computer gurus." And incredibly, one still hears of students who feel obliged to hand-trace their computer renderings to conceal from some faculty that their work was generated on a computer.



CHALLENGE 1

CONNECT WITH COMPUTERS

Computers can open studios to many cultures and viewpoints

A few schools such as Mississippi State University, Texas A&M, the University of Southern California, the New Jersey Institute of Technology, and M.I.T. have advanced the frontiers of visualization technology, and have moved aggressively to incorporate computers into design education. Roughly a dozen schools require students to purchase CAD-capable laptops. Mississippi State has sought to strengthen its own pool of computer expertise by introducing, this year, a master's degree in digital design, which has made graduate students available to help undergraduates with their computer struggles. And individual faculty have produced impressive research exploring how computers are changing the products and processes of design.

What deserves even more attention is how computers, as tools of global communication and information-gathering, can open studios to many cultures and viewpoints, and over time, even help transform the teacher-student relationship. At Carnegie-Mellon University, students are using web home pages to display their work. And a few schools have begun "online juries," in which students display their projects on web sites to be critiqued by architecture experts and faculty around the world.

At Ball State University, for example, David Mackey, who teaches a fourth-year electronic design studio, says his students use the Internet to identify and contact "remote critics"—architects around the world who are experts in the knowledge area of projects in which they're working. Students display their designs on their own home pages, and "remote critics" from as far away as Italy send critiques by e-mail. One result: Mackey's own role as sole authority over student work has been transformed.

"Suddenly," says Mackey, "there are more than fifteen critics in the studio. As a teacher, I become a facilitator and fellow learner, rather than the only expert. We can now run a global design studio, which also has implications from a cultural point of view. The student is no longer presented with a single linear path to design."

Such changes aren't just cosmetic. Last spring, students in Mackey's class entered a competition sponsored by the Association of Collegiate Schools of Architecture (ACSA) to design a "hotel of the future," and his students won two of the six prizes.

It's time—indeed, past time—for more schools and faculty to join the computer revolution with both feet. Along with their impact on making design a more integrative process, computers, as tools of information, communication and analysis, can open studios as never before to the concerns and perspectives of communities around the world.

End apartheid in architecture schools

Martin Moeller, executive director of ACSA, recalls a recent "architecture career day" at a public school on Capitol Hill in Washington, D.C. "The student body at the school was mixed, but the program drew an overwhelmingly white crowd. A good mix of boys and girls, but in terms of race, it was astonishing," Moeller said.

The race record of architecture education is a continuing disgrace, and if anything, things seem to be worsening. In 1992, there were 2,172 African-American architectural students, 5.9 percent of the national total. By 1996, the number had actually dropped to 2,018, or 5.4 percent. Just 3.2 percent of all architecture faculty—123—were African-American. Of those, 40 in the entire nation were tenured. Put bluntly, it's hard to imagine that this profession can ever lay claim to leadership in shaping the built environment when it remains so unreflective of late 20th-century America.

Over the years, individual faculty, many now graying veterans of the civil rights era, have carried on lonely battles to make their schools more welcoming to minority students. Lately, the thinking seems to be that a more inclusive curriculum is key: adding non-Western perspectives, promoting scholarship aimed at documenting how persons of color have shaped architecture here and abroad, and offering more studios that connect architecture to community concerns.

Many such efforts have been documented by Sherry Ahrentzen of the University of Wisconsin-Milwaukee in a new ACSA publication, *Doing Diversity*. Kathryn Anthony, for example, teaches "Gender and Race in Contemporary Architecture" at the University of Illinois. "The American City Since 1940: Class, Race, Gender, Culture, Space," is taught by Thomas Dutton at Miami University in Ohio. "Asian-American and African-American Environments" is offered at California Polytechnic State University-San Luis Obispo by

25 YEARS INTO THE TECHNOLOGY AGE, IT BORDERS ON EDUCATIONAL MALPRACTICE THAT SO MANY FACULTY HAVE YET TO MASTER COMPUTERS...

Christopher Yip and Brad Grant (who has since moved on to historically black Hampton University).

Nonetheless, with only tepid support from the profession, and with recent anti-affirmative action federal court rulings clouding the picture even further, schools of architecture are throwing a party to which few in the minority community are likely to come any time soon. In the short run, the number of African-American students will probably remain tiny and concentrated mainly in historically black institutions and a handful of urban public institutions.



Says Prof. Ahrentzen: "Unless there's a concerted effort—more than just one or two committed people in a department—I see things continuing to dwindle. Why should it be any different?"

What can be done to reverse this pattern of ineffectiveness? On campuses, the first steps must be taken by university administrators who have an obligation to provide resources for faculty and student recruitment. Presidents, provosts, and deans also have to ensure that campus rewards and priorities work for, and not against, the goal of diversity.

"I've given every dean on campus a blank check to hire minority faculty," said Dr. Derek Hodgson, provost of Mississippi State, a school that seems as sincere as any in wanting to issue a welcome to people of color. But his school also illustrates how tough the obstacles can be. Not only is it hard to find African-American faculty for the architecture program, says Hodgson, it's even harder to find persons of color willing to relocate to Mississippi.

Even when the will is there, the goal of diversity often collides with other priorities in competing for scarce resources. Said Dr. Melvin Ray, Mississippi State's vice president for research: "Let's say that as a dean, I have to decide whether to spend money to send a faculty member to a conference, or spend money recruiting for African-American students in Jackson, or make a generous offer to recruit an African-American faculty member. That's a tough decision. Which decision is going to get the greatest support from faculty and others internally?"

EVEN WHEN THE WILL IS THERE, THE GOAL OF DIVERSITY OFTEN COLLIDES WITH OTHER PRIORITIES IN COMPETING FOR SCARCE RESOURCES.

Beyond campuses, the challenge is to change the remote image of architecture in African-American communities—and few people understand this better than Rodner Wright. In 1994, Wright held the shocking distinction of being the only licensed African-American architect living in Mississippi. Last August, he left to become dean of Florida A&M's architecture program.

The architecture profession has no real presence in most [illegible] communities, Wright says. And in such communities, [illegible] sense that residents have any influence over the [illegible] of their built environment. Lacking political or [illegible] in America, communities tend to view the built environment as a fact of life beyond their influence, controlled by government or outside developers and profiteers.

"The nature of the profession promotes the idea that it's mainly about signature architecture by signature architects, as opposed to urban planning and development of the total community," says Wright. "So if you're a young kid thinking about being in a profession in your community, you don't necessarily see where architects might fit in."

All of which points to a desperate need for members of the profession and schools of architecture to step up their efforts to ensure that knowledge of the built environment, and architecture's role in shaping it, is a basic part of elementary and secondary education. The American Architectural Foundation, among others, has been trying for years to expose younger students to architecture, but those efforts, to date, have only scratched the surface of the problem.

The failure to raise the status of architecture in the African-American community is especially short-sighted. In years to come, notes Wright, America's population, and hence the potential client base for architects, will include many more persons of color.

If schools and the profession have been unmoved by their better angels to make diversity a top priority, perhaps they'll awaken to the profits to be made, and new markets to be tapped, in bringing more minority youngsters into the architecture field.

Make excellent teaching a top priority

Among those who blame architecture schools for being lost in the blue yonder of theory and design, and deaf to the day-to-day concerns of the profession, architecture teachers make tempting targets.

Such critics often wonder out loud whether it makes sense that fewer than half of the nation's 4,000 full- and part-time faculty hold architectural licenses, according to data kept by the National Architectural Accrediting Board, Inc.

Those alert for even darker conspiracies note that large numbers of faculty earned their last degrees from nine elite universities, most of which are labeled, with widely varying degrees of accuracy, as "theoretical" as opposed to "practice-oriented." An unscientific count does, indeed, indicate that in 1996, roughly 40 percent of the nation's architecture faculty earned their last academic or professional degrees from a small cluster of Ivy or elite schools. From there, it's only a small leap to imagining that these elite-trained teachers, like the science-fiction "pod people" from "Invasion of The Body Snatchers," are a monolithic force spreading their dreamy, impractical ideas to schools around the country.

One antidote being discussed lately in some professional and regulatory circles is to require that most or all faculty, especially those teaching design, be licensed architects. One school, Montana State University, actually took that step more than a decade ago for virtually all faculty except historians. Clark Llewellyn, the school's director, claims that the resulting strong professional orientation of his program has meant that more than 90 percent of graduates over the last 10 years have found jobs in the architecture field—far more than at most schools.

Critics are right, in one sense, to focus on faculty. Too often, in discussions about how to improve education, the quality of teaching is shockingly neglected. Still, the near-McCarthyite preoccupation with

the professional or academic backgrounds of faculty badly misses the point, and could create greater mischief by arbitrarily eliminating many able studio teachers, eroding the already-weak research capabilities of architecture faculties, and endangering the diversity of faculty, which is one of architecture education's greatest strengths. Above all, it ignores the reality that while the profession may be the most important constituent of architecture schools, it is not the only one. Many students will never design buildings, and so faculty have to be equipped to educate for a variety of careers.

"I don't think a faculty member who teaches design should have to be licensed," said Gregory Hunt, dean of Catholic University's School of Architecture and Planning. "I've seen faculty who have never built a room who are outstanding as teachers."

"The profession is thinking narrowly," agreed Kent Hubbell, chair of the architecture department at Cornell University, one of the Ivy League schools which graduates a large number of future architecture teachers. "In the end, the good school is a mixture of all of the above—practitioners and scholars."

The focus for renewing teaching should be on creating a more capacious academic and scholarly climate on campus that encourages professional faculty to have a better balance of backgrounds, including practical experience and Ph.D's. It's up to administrators to establish a harmonious atmosphere in which diverse faculty can coexist and learn from each other's strengths and experiences, rather than becoming factionalized. Schools like the University of Oregon have helped set the stage for more collegiality by requiring faculty to teach both studio and lecture courses.

Schools also should get more serious about supporting teaching ability—rewarding excellent teachers with tenure and promotions, and remedying it where weak. In a comprehensive survey in 1994 conducted by The Carnegie Foundation for the Advancement of Teaching, nearly 60 percent of architecture faculty agreed that their schools would benefit from sustained teacher training.



CHALLENGE

STRESS EXCELLENCE IN TEACHING

Too often, in discussions about how to improve education, the quality of teaching is shockingly neglected.

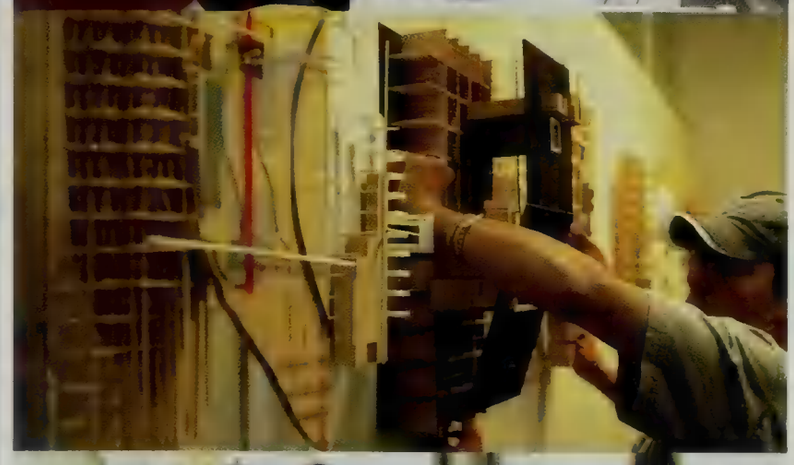
"Teachers should have a professional understanding of what they teach. But the fundamental issue is, here's the range of stuff we need to teach. Is the faculty qualified to teach it?" said Jerry Finrow, the dean of the University of Washington's architecture program.

Finrow added that a key is placing the right faculty in appropriate studio levels. For example, lively teaching skills may be more important than licensure as a qualification for teaching beginning studios. "In beginning studios, faculty should be extremely good at instilling enthusiasm and helping students make the transition to young designers. A stiff guy in a beginning studio is a disaster."

Finally, and most essentially, teachers must serve as models for connecting learning to the larger purpose of the profession and communities. A program that encourages [illegible] activists is Arizona State University. One [illegible] the









architectural critic at *The Arizona Republic*. Several others are involved in television programs about architecture, while others serve on commissions that shape projects both on and off campus.

To renew architecture schools, then, the answer lies not in meat-axe solutions aimed at banishing unlicensed faculty, but in a more rational approach. The keys are to ensure that teachers can really teach, that teachers are appropriately placed in their areas of strength, and that what is taught is firmly grounded in the notion of service to the profession and the public.

Connect learning to life

The most essential challenge is to change the content and culture of studios to prepare graduates to practice competently, as well as to lead the profession to a broader definition of its ideals.

Here, there's reason for optimism. A growing list of schools and individual faculty have lately done inspiring work in connecting studios to community concerns, and in producing meaningful research from those experiences.

The Southern California Institute of Architecture (SCI-ARC) in Los Angeles, for example, now requires all students to work on community-based projects developed by its newly formed City Practice + Research Center (CPR). Besides giving students the experience of direct involvement with a variety of community-design problems, the goal is to develop a community clearinghouse for design research. The CPR curriculum has students designing public housing for people with AIDS, teaching high school workshops in collaboration with the Esperansa Housing group in an impoverished Los Angeles neighborhood, and designing a meditative garden at the Veterans Administration Hospital in West Los Angeles.

At the New Jersey Institute of Technology in Newark, Professor Leslie Kanes Weisman's "service learning studios" offer as clear an example as any of how community-oriented design studios can transform the outlook of both future architects and clients. Her studios have had students designing housing for AIDS children in Newark. They have also worked on designing sustainable buildings for the Grail Community, a Christian society in Cornwall-on-Hudson, N.Y., dedicated to empowering women globally and promoting environmental justice.

From the first day of class, students learn that Weisman's studios are dramatically different. Instead of students simply claiming work space, Weisman challenges them to think together as a team about how available studio space ought to be used to fit functions.

"I sit everybody down and tell them we are doing a 'design research collaborative.' We need conference space. We need a model-making area. We need community space. So I ask them to measure the room and come back with a floor plan. We make decisions by consensus, and then we look for good, refined ideas. We come up with a composite and proceed to build it. Only after we determine who in the class is going to do what, do students claim space. Students learn that [illegible] ve to stifle individual creativity. At the epicenter [illegible] g or power."

[illegible] oceed, work [illegible] ch are evaluated by the [illegible] s of its value [illegible] ng the problems of the [illegible] p on studen[illegible] to evaluate their own work: "Did you meet your own criteria? Was this a valuable educational experience for you?"

Jason Kliwinski, a student in the Grail studio in 1994 who now works in a Newark firm specializing in historic preservation, said his experience in Weisman's studio is still paying dividends: "The research we did then is still valuable to me. We had to learn how to present our ideas to groups, how to speak publicly, and how to meet with real rather than theoretical clients."

The clients of Weisman's studios, for their part, say the experience changed their attitudes about architects: "The design work the students did on housing for us was excellent, very creative," says Peg Linnehan, a member of the Grail Community. "I never worked with an architect before, and all I had was the stereotype of someone who is very technical, and that I would have to understand the lingo. I did not expect that an architect would be interested in learning what we were about."



CHALLENGE 4

CONNECT LEARNING TO LIFE

Schools and individual faculty are doing inspiring work in connecting studios to community.

Says Prof. Weisman, "Students need to see the optimism in communities, the intelligence in communities, and the desire to solve their problems. Architecture students can play an important role in this: providing models of what could be."

Diana LeFevre, who took Weisman's AIDS studio and is now in private practice in Hunterdon County, N.J., said the experience was crucial to her professional outlook. "The day we went to see the kids with AIDS was probably the most difficult and powerful day I've had in architecture," she said. "It was the best way to end my school career. If I could find a job that would bring me half as much fulfillment, that's what I'm seeking in my professional life."

. . . PREPARE GRADUATES TO PRACTICE COMPETENTLY AND LEAD THE PROFESSION TO A BROADER DEFINITION OF ITS IDEALS.

Four challenges and more

These four challenges—using computers to open studios to a world of different viewpoints, increasing racial and ethnic diversity, putting greater value on teaching, and connecting learning to life and community needs—are certainly not the only ones facing architecture schools. But they are among the most nettlesome and, in several cases, the most chronically neglected. Yet each holds the promise of helping to create a profession more accessible and empathetic to a far broader public and clientele. Above all, each challenge offers schools the opportunity to lead the way in affirming that the spirit of competent service to communities, as well as to clients, must define the soul of architecture if the profession is to thrive in the years ahead.

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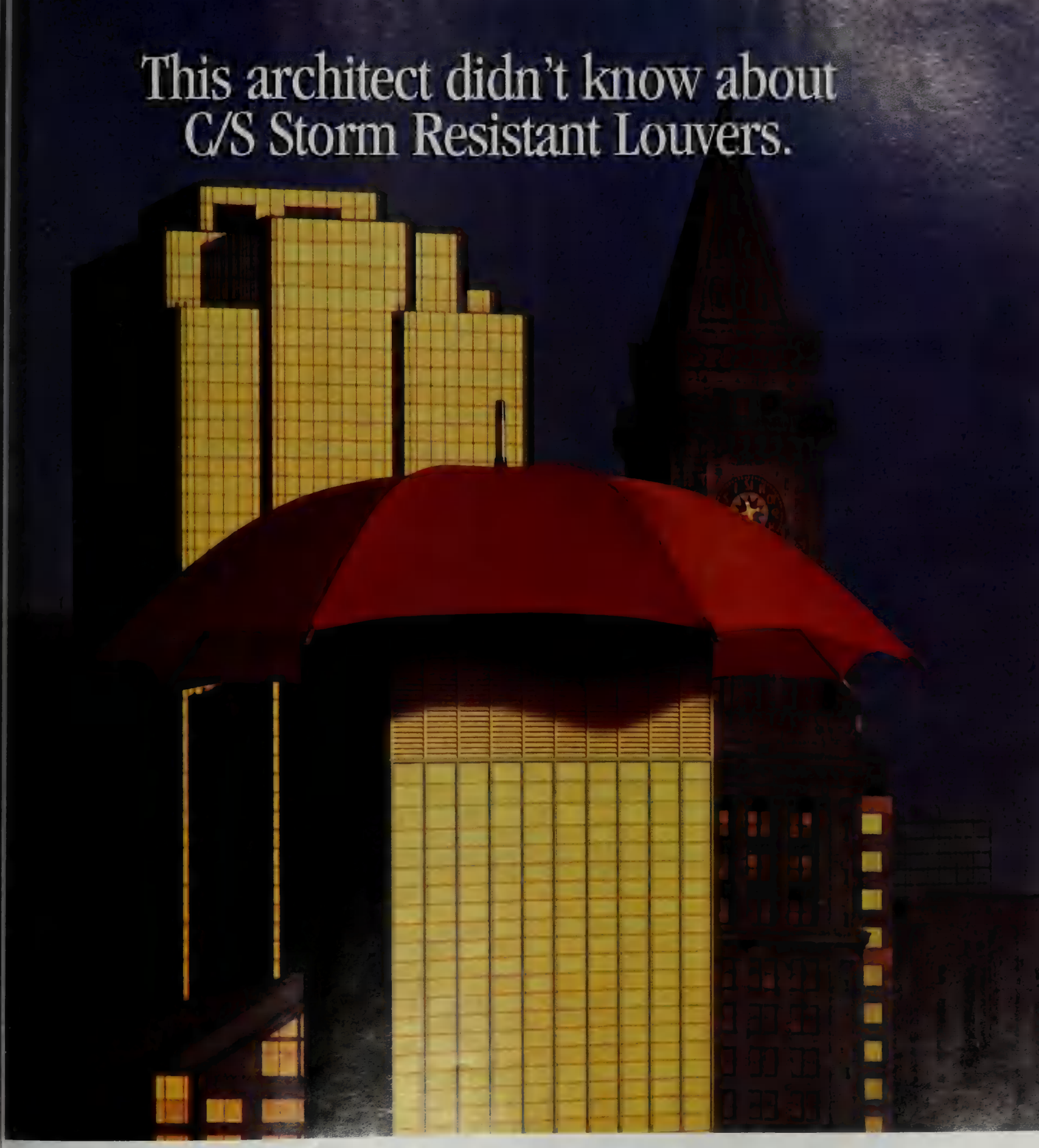
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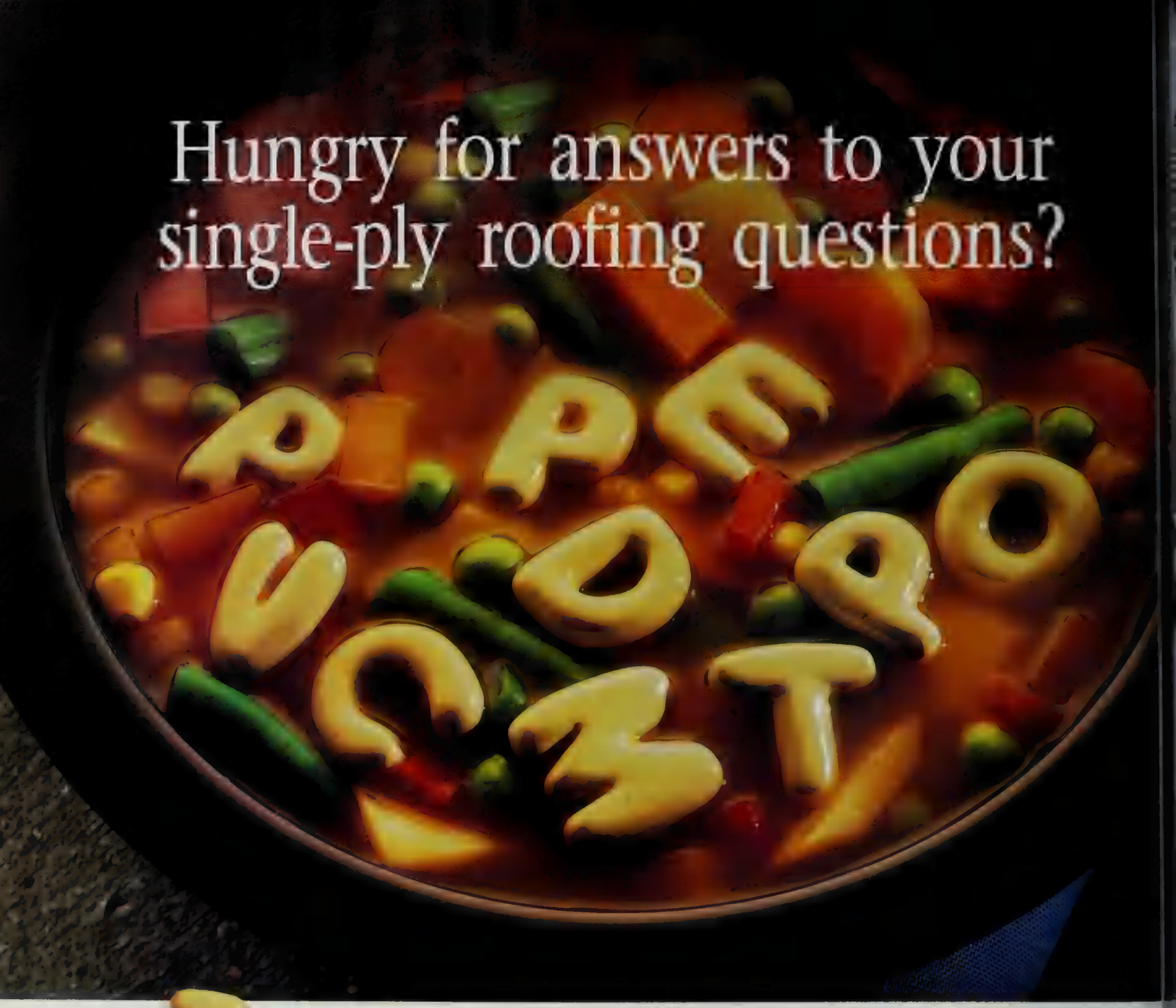
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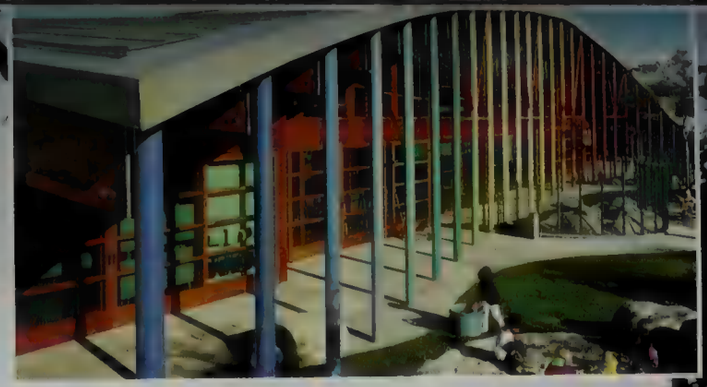
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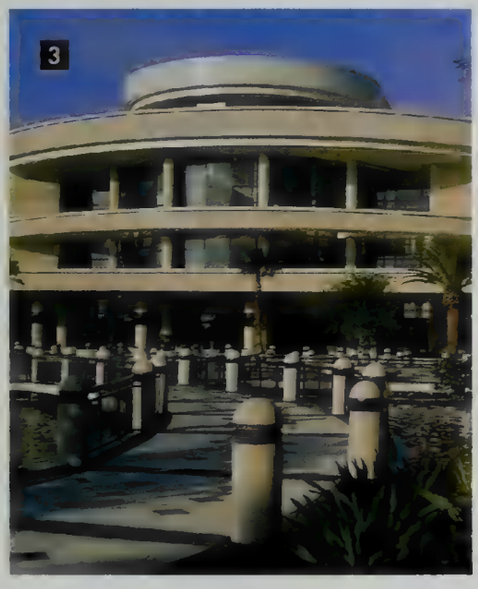
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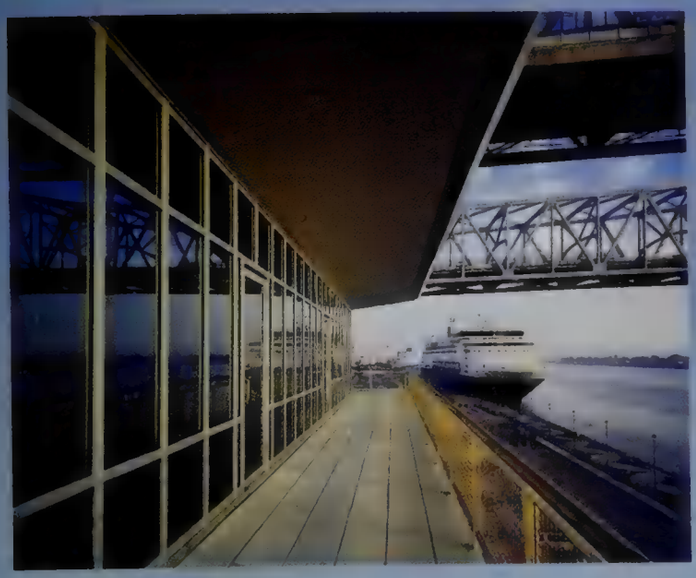
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Crescent City on the edge

AS PEOPLE FLEE NEW ORLEANS FOR THE SUBURBS, THEY ARE ABANDONING A RICH ARCHITECTURAL AND CULTURAL HERITAGE. IN THE WAKE OF THE EXODUS, THE CRESCENT CITY IS BECOMING A PLACE TO LOVE AND MOURN. By Charles D. Linn, AIA





The Mathes Group, a New Orleans architecture firm, plans to convert these abandoned cotton sheds (below) into the New Orleans Center for the Creative Arts. Waggonner & Ball Architects' Port of New Orleans Building (left) also once stood in an industrial area.



It is late March of this year, and the Mississippi River is rushing by flood walls and levees at an elevation that is many feet higher than the French Quarter. Yet most people here don't seem too concerned about it. Native New Orleaneans are hardy stock, having survived yellow fever epidemics, catastrophic fires, and enemy attack. Meanwhile, invading cultures seem to have been conquered by assimilation. The city's architectural legacy, wrought by the collision of people from five continents over time, is unique to the U.S. Further, it is linked more closely to its Caribbean roots than its upland neighbors. One cannot help but notice these influences when observing even the city's poorest neighborhoods. They sport raised cottages, camelback doubles, Spanish patios, and sleeping porches; they are the vestiges of a multicultural past.

When a building is torn down from the middle of a block in the older part of town, the remaining party walls tell the story of that building. They bear the scars of rows of empty joist pockets, rusty broken anchor bolts and iron tie rods, arched windows and doorways that have been filled in with brick, and room-sized squares of plaster that show where interior walls were finished. One of the things architects find moving about New Orleans is that they need not go out of their way to observe these archeological remnants of the past, since many of the fossils here have not been washed away or covered by silt.

At the heart of it all is urban form: Buildings were tightly packed together on land that was extremely hard to come by when the city was a 18th-century village built on an island surrounded by swamps, and the system of underground canals and modern pumping equipment that would drain those bogs were more than 100 years in the future. Lacking lighting and mechanical systems, the small houses and commercial buildings were built with high ceilings and floor-to-ceiling windows to take advantage of daylight and natural ventilation. Shutters were added for privacy, to modulate the light and breezes, and guard windows from the occasional hurricane. Balconies and porches were places to stay cool or for summer sleeping. People lounged on low, settee-shaped stoops in front of the entries to their shotgun houses or Creole cottages, and participated in the life of the street. When housing and commercial space became scarce and valuable in the French Quarter, people simply built on top of their single-story buildings. The upper stories of buildings in the city reflect this evolution—often they are built of different materials or architectural trim that clearly differ from that used on the lower levels.

Part of the reason that so much of New Orleans—not just the French Quarter—has survived is that people here have always been comfortable with the past, and were reluctant to obliterate it. "New Orleans





A boarded-up department store (top right) and several cottages (left) in the Central City district are examples of the kind of buildings threatened by neglect.

once had a very aristocratic society—people who were established in the community and had lived here and been civic leaders for generations," says local architect Errol Barron, Jr., FAIA. "It was in their interest to work against the new. These people, as do most people who live here now, valued a way of living over change. They valued life's comforts. New Orleans is a perfect example of a most livable alternative to the Anglo-suburban way of life you see in most other places in the States, where everyone has a house that is isolated by a big plot of land." Another reason

THE THINGS THAT HELPED SAVE NEW ORLEANS' ARCHITECTURE IN THE PAST CONSPIRE TO THREATEN IT NOW.

many buildings have survived is that times were sometimes hard in New Orleans even before the oil bust of the 1980's, and fewer buildings have been demolished to make room for the new than they have in other cities."What you learn when you look at things here in New Orleans is that economics has a crucial influence on architecture," says social historian Randy Delehanty, the author of a soon-to-be published city guide, and the introductory essay in photographer Richard Sexton's book, *Elegance and Decadence*. "Buildings are built when cities are expanding, and New Orleans has been in a serious population decline. That's why there isn't a lot of contemporary and Modern design here."

But what has helped save New Orleans and its architecture in the past is also part of a set of larger complex social problems that conspire to threaten it now. Since 1980 the population of Orleans Parish has declined by 72,000 to 476,625, as those who were once employed by businesses such as the oil industry left to work elsewhere. Some who had jobs moved from Orleans Parish to St. Tammany Parish, on the middle-class "North Shore" of Lake Pontchartrain. The parish was the fastest growing parish in Louisiana between 1990 and 1996, increasing its population by 23.5 percent. Tourism is healthy here—despite the mid-construction abandonment of Harrah's huge casino near the foot of Canal Street. Last year, 2,000,000 convention delegates visited the city, and between 1984 and 1994, the number of people employed in the services sector increased by 6,000 to almost 121,000. But this is not enough to offset the loss of jobs in other areas: The number of people employed in construction, manufacturing, and retail services declined by 16,000 over the same period. While there were 29,000 hotel rooms in the metropolitan area, according to the [illegible]



This American [illegible] is an example of [illegible] sands of homes [illegible] can be found [illegible] bottle[illegible] French [illegible] colors [illegible] and brighter pas[illegible]—lavenders, pinks, and yellows. Victorian [illegible] adorns it into a [illegible] world

census, there were 37,338 vacant housing units, almost 16,000 of which were built before 1939. Many of them, if they were in good condition, would bring premium prices in any other city.

It is hard to pin the flight of jobs and people from the city on any one cause. Some say fear of rising crime is to blame—in 1994, there were 389 murders here, and the following year, Mayor Marc Morial suspended, reprimanded, or fired 74 police officers for incompetence or corruption. Whatever the cause, while the loss of population and subsequent decline of many neighborhoods away from the French Quarter cannot be reversed just by preserving New Orleans' buildings, it is also a fact the city will not attract jobs and people if its districts lie in ruins.

Fortunately, the preservation movement is very healthy here. Since 1988, the city's Preservation Resource Center (PRC) has improved 625 houses, six schools, two community centers, and a courthouse through their programs, with a total investment estimated at $11 million. During their Christmas in October program, teams of volunteers repair the residences of low-income elderly or handicapped homeowners. The Center's executive director Patricia Gay is one of the city's most enthusiastic backers, but she is realistic about how much preservation can do to save the city. "To bring back the neighborhoods you have to bring back the businesses. And to bring back both, people need jobs. But meanwhile, houses and commercial buildings are threatened."

"Demolition by neglect is against the law," says Gay, "but these laws are not enforced." And, although demands for repairs and fines can be levied against property owners and collected through civil suits, Gay says such actions are seldom taken. Considering the sheer number of properties involved, this is not surprising. Determining exactly who a piece of property belongs to can be a daunting task, considering that often mortgage foreclosures, liens, estate squabbles, and absentee owners may be involved. But the City does regularly condemn and demolish houses, about 300 per year, at a cost of $450,000. The math is fairly easy: At $1,500 per house, bulldozers are a lot more efficient at dealing with the problem of blight than hammers and paintbrushes. And even if the owner of a building wants to repair the property, the demand for inner-city housing is low, and financing for improvements in some districts is difficult to find. "The thinking is, 'Why improve property that isn't worth much in terms of dollars?'" says Gay.

The PRC has addressed both problems. Its Operation Comeback helps building owners find lending institutions that will make package loans for the purchase and renovation of homes, helps potential homebuyers find property, and gives workshops on renovation. The organization also has a facade donation program, which gives building owners the opportunity to grant an easement to their facade to the PRC in exchange for a tax break. The owner must maintain the facade, but cannot change its appearance. The PRC is also actively lobbying for the new federal Historic Homeowner Assistance Act, which would allow a 20 percent tax credit for the cost of renovations to historic homes meeting certain guidelines. The cost of the renovation would have to exceed the value of the property. "It would provide a real incentive to people who want to fix up their homes, and for others to return to the city," says Gay.

Those who live in poorer neighborhoods, where abandoned buildings are problematic, are understandably frustrated. One group, called All Congregations Together (ACT), is an ecumenical organization made up of 61 church congregations, including Catholics, Baptists, Jews, and other denominations, whose goal is to fight crime and to make New Orleans livable again. In the last few years, the group has had great success in organizing neighborhood watches and community policing, and has placed much pressure on local politicians, bureaucrats, and police to address housing issues in the city. But as well meaning as they may be, the group may well be working toward their goal of improving the quality of life in the city at the cost of still more of New Orlean's precious building stock.



In a letter published in the November 18, 1996 *Times-Picayune*, a reader from the preservation community who had been working with ACT to find a way to save the city's houses, wrote that he had learned in a meeting with the organization of their new slogan: "Demolish 1,000 Houses." ACT's letter to the paper responding to his concerns stated, "Vacant, abandoned, and vandalized housing diminishes the quality of life and victimizes all who live around them. We believe that historical preservation is not an absolute or universal value. This must be weighed against other values, including the right to live safely in one's home or neighborhood."

UNFORTUNATELY, NEW ORLEANS CANNOT SURVIVE SIMPLY, "AS A MUSEUM TO A WAY OF LIFE THAT IS OBSOLETE." —ERROL BARRON, JR.

The loss of a such a great architectural heritage in a great American City is frustrating and maddening. But New Orleans cannot survive, "as a museum to a way of life that is obsolete," says architect Barron. Saving the neighborhoods and the buildings requires bringing back jobs, industry, and the vitality that once drove this bustling city. Architectural design and planning can only go so far in remedying what are essentially social and economic problems. One should also not forget the successes that have occurred here (see sidebar next page). When access to the riverfront was limited by industrial buildings, warehouses, and shipping activity, it was the combined planning effort by the local designers, the city, and public that resulted in the park, aquarium, and the Riverwalk that occupy this space today. And with tourism's emergence as the city's largest industry since then, it is not hard to imagine what the city would be like had these efforts not been made.

Maybe it is simply impossible for outsiders to completely understand all of the contradictions embodied in the attitudes that New Orleaneans have toward their built environment. A block away from the Riverwalk, the Piazza d'Italia, designed by Charles Moore and August Perez, stands neglected. Its fountains are turned off, neon shattered, and its stucco and plywood finishes are crumbling and peeling. Someone has stolen the slab of marble which bore Moore's name from the pedestal in front. Yet, a crew of friendly homeless people are very pleased to call the place home. One of them, an electrical engineer who lost his job when the oil boom crashed, gives a very detailed history of the Piazza to passersby, but Moore's name doesn't ring a bell with him. He appreciates the place for its own sake, not because it is a famous place beloved by architects. The rotting of the Piazza d'Italia doesn't seem to be something he thinks he can change, so he lives with it. What he really wants is a job.



CONTEXT

Losing a Way of Life

One might ask why New Orleans' shotguns and Creole cottages went out of fashion. "Air conditioning and television destroyed what we love about New Orleans' older houses," says Randall Delehanty. "A whole way of life developed as a response to the climate and actually shaped the architecture. People sat on their stoops and front porches, to get out of the heat of the house and to socialize. Their entertainment was watching the life on the street. But that changed with technology. A little bit of that still exists in the Quarter, but in most places it has disappeared. The older sections of the city, where that custom still continues, are still the most attractive places to live if you like that kind of existence. Most Americans don't. They turn on the air conditioning, rent a video and hide in the back room. The fact that people don't observe the sidewalk the way they used to has reduced safety in the city. Houses started changing in certain parts of the city in the 1950's, near Lake Pontchartrain and in pockets uptown. These new houses were based on conventions imported from California that were completely divorced from the traditions of New Orleans' buildings. Some were even built with walls that had clerestories and no windows that looked out into the gardens or the streets. That style, and the styles of most newer homes, don't relate at all to what is best about this place: the foliage, the gardens, the trees, and the people." ■



Front stoops, some shaped like settees (top left) and some plain, gave New Orleaneans places to escape from the heat and to socialize.









New Orleans' New Work

Architect Erroll Barron sums up the challenge facing New Orleans' architects by saying, "It's extremely difficult to compete with the 19th-century architecture here because it was so good. You either ignore it and do something Modern or acknowledge it and wind up doing something that's not as good." While two recent projects in the city have a decidedly Modernist appearance—Waggonner & Ball Architects' Port of New Orleans Building (left middle), and Phase II of the Aquarium of the Americas, a joint venture by AOA² Architects, Billes & Manning Architects, and Eskew & Filson Architects (left bottom),—both continue the tradition of using open arcades to provide shady, cool walkways. A residential addition by Peter Trapolin Architects (right middle) avoids the Modern, however, and is almost indiscernibly tucked into an existing house. Tulane faculty members Malcolm Heard and Scott Bernhard collaborated on a studio for photographer Richard Sexton (right bottom) which sits upon a flat-roofed room previously added to a shotgun house. Traditional elements such as screens, a tiny gallery, and shutters are used. ■

PHOTOGRAPHS © NEIL ALEXANDER, LEFT, MIDDLE AND BOTTOM. ALAN KARCHMER, RIGHT MIDDLE; RICHARD SEXTON, RIGHT BOTTOM

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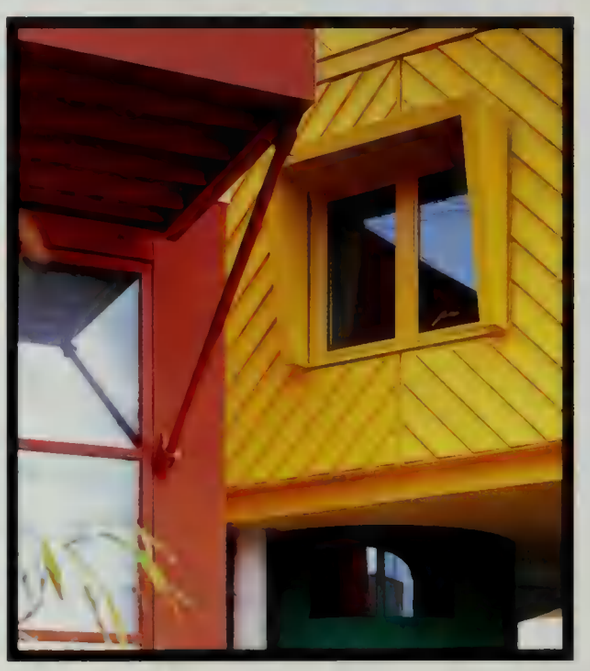
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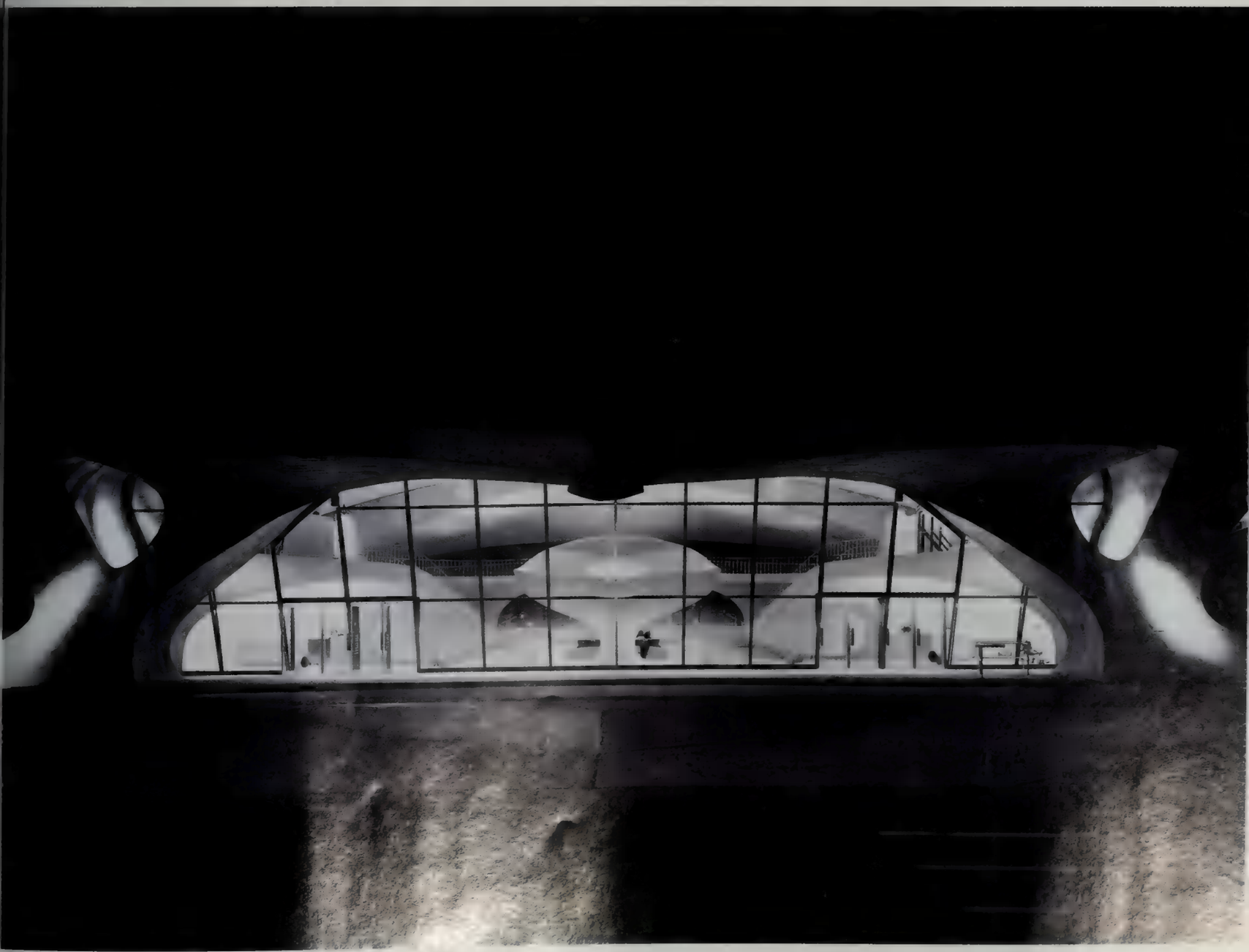
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Through the Viewfinder

Born in 1915, Ezra Stoller is the godfather of architectural photography. He began his career in 1939 and his first commission for this magazine was in 1940. Frank Lloyd Wright, Eero Saarinen, and Marcel Breuer's photographer of choice, Stoller continued to document important new works of architecture into the 1980's.





Previous page: TWA Terminal, Idlewild Airport (now JFK), New York, Eero Saarinen, photographed 1962

Right: East Wing, National Gallery of Art, Washington, D.C., I.M. Pei & Partners, 1978

Below: Hirshhorn Museum, Washington, D.C., Gordon Bunshaft/Skidmore, Owings & Merrill, 1974

Far right: Healy Guest House (Cocoon House), Siesta Key, Florida, Paul Rudolph, 1950





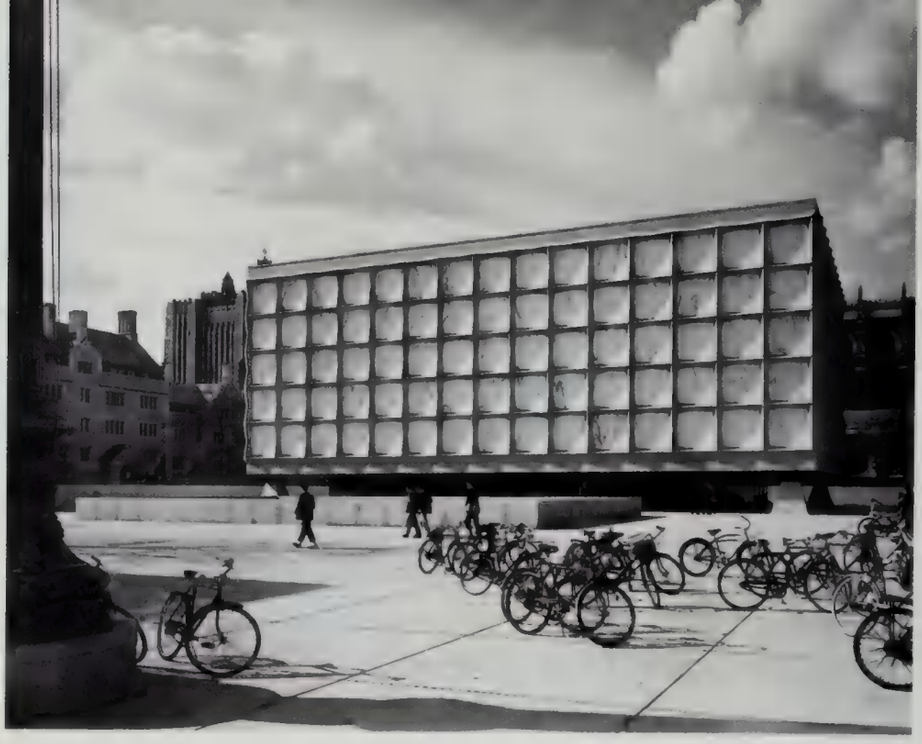






Left: Fallingwater, Bear Run, Pennsylvania, Frank Lloyd Wright, 1963

Above: Robert R. McMath Solar Telescope, Kitt Peak, Arizona, Myron Goldsmith/Skidmore, Owings & Merrill, 1962



Left: Beinecke Rare Book and Manuscript Library, Yale University, New Haven, Connecticut, Gordon Bunshaft/Skidmore, Owings & Merrill, 1963

Below: The Salk Institute for Biological Research, La Jolla, California, Louis Kahn, 1977

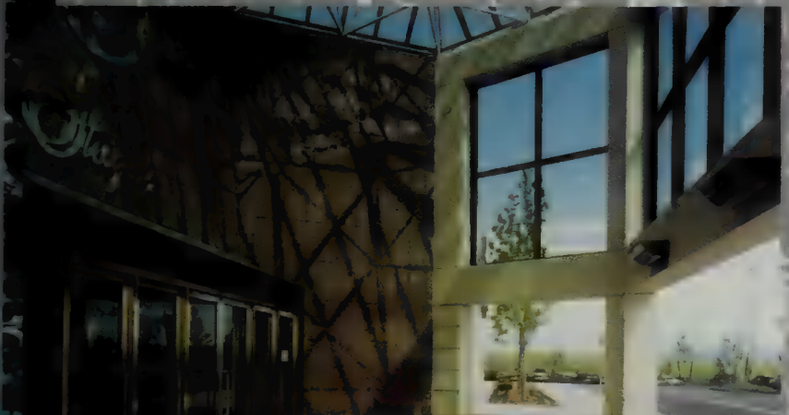


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A special advertising supplement by the National Concrete Masonry Association



Above: Glazed concrete masonry units have a high-quality, durable finish that is relatively impervious to Canadian frost.

On the Cover: A cheerful facade greets school children as they arrive for class in Ottawa, Canada. Glazed masonry units in bright colors capture the school's educational philosophies, breaking out of the institutional mold.

Concrete Masonry...
Educational Facilities Demand Durability

Amid a great deal of fine construction achieved with concrete masonry, some projects stand out as exceptional examples of architectural creativity. The construction projects highlighted here are all superb instances in which concrete masonry has been used by designers to achieve high quality and overall beauty, making every one of these structures community landmarks. These projects can all claim to be among the best designs in their class.

Churchill Public School, Ottawa, Canada

Having reached an age where it was in dire need of a facelift, the Churchill Public School in Ottawa, Canada, turned to concrete masonry. Located in the city, the new school was built up rather than out, spanning three stories on a small, urban site.

The best thing about this school, says architect Tony Griffiths, a partner with Griffiths Rankin Cook Architects in

Cover Photo by Adrian Searle

Ottawa, is that it doesn't look like a school. "We wanted it to be a place that would invigorate students, not look like an institution," he says.

The design intent was to provide new facilities for the alternative school which addressed the compact nature of the site, maximized playground space and was ecologically sound. It was also considered particularly important to respond to the structural informality and spontaneous nature of the learning process by providing gathering spaces, both inside and out.

The products' durability, sound absorption and fireproof qualities are major benefits. "We specified concrete masonry because we enjoyed the available colors," says Griffiths. These materials were able to contribute both to the design's strong cubic forms, as well as sweeping curves. Also, he adds, the quality of the finish on the glazed units is very impervious to frost, an important consideration in Canada.

Vibrant blues, greens and reds contribute to the school's bright exterior in a striking combination with red-brown brick. For the interior, Griffiths selected a scored block. With a line down the middle, these units appear square-shaped. The interior block is painted. "It's very tough," says Griffith, "and will stand up to endless wear."

Lehman College, Bronx, New York

In 1994, the Bronx's Lehman College was scheduled to get a new physical education building. With the new facility located at the northern end of College Walk, sculptor Jackie Ferrara designed a covered concrete masonry walkway as a pergola to the building. The concrete masonry structure straddles the sidewalk's 10-foot width, stands 11-feet high and runs 107 feet long.

Below: Inside the gymnasium complex, concrete masonry walls are highly functional because of their low maintenance. At the same time, the block units lend textural contrast to the vast space.

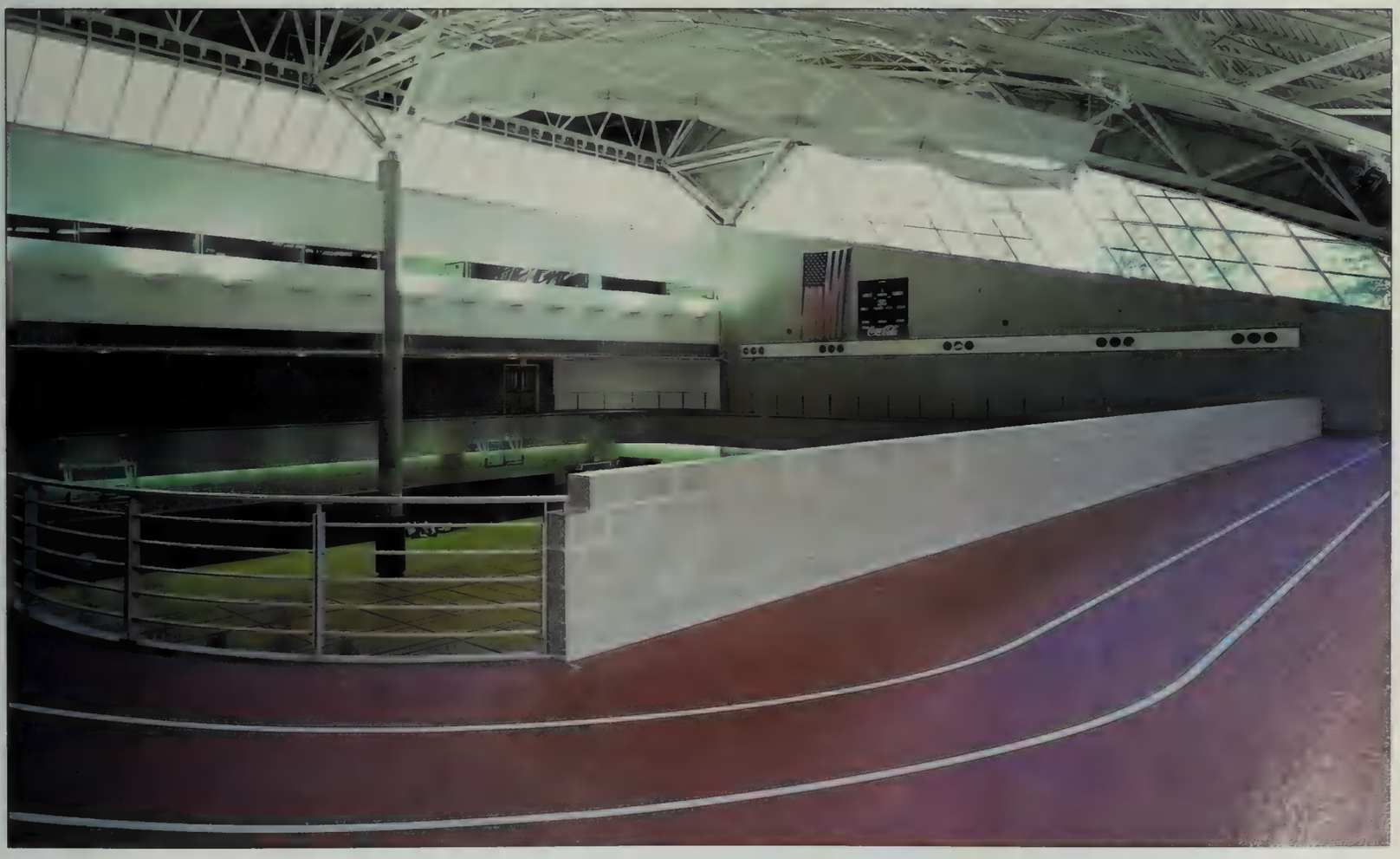
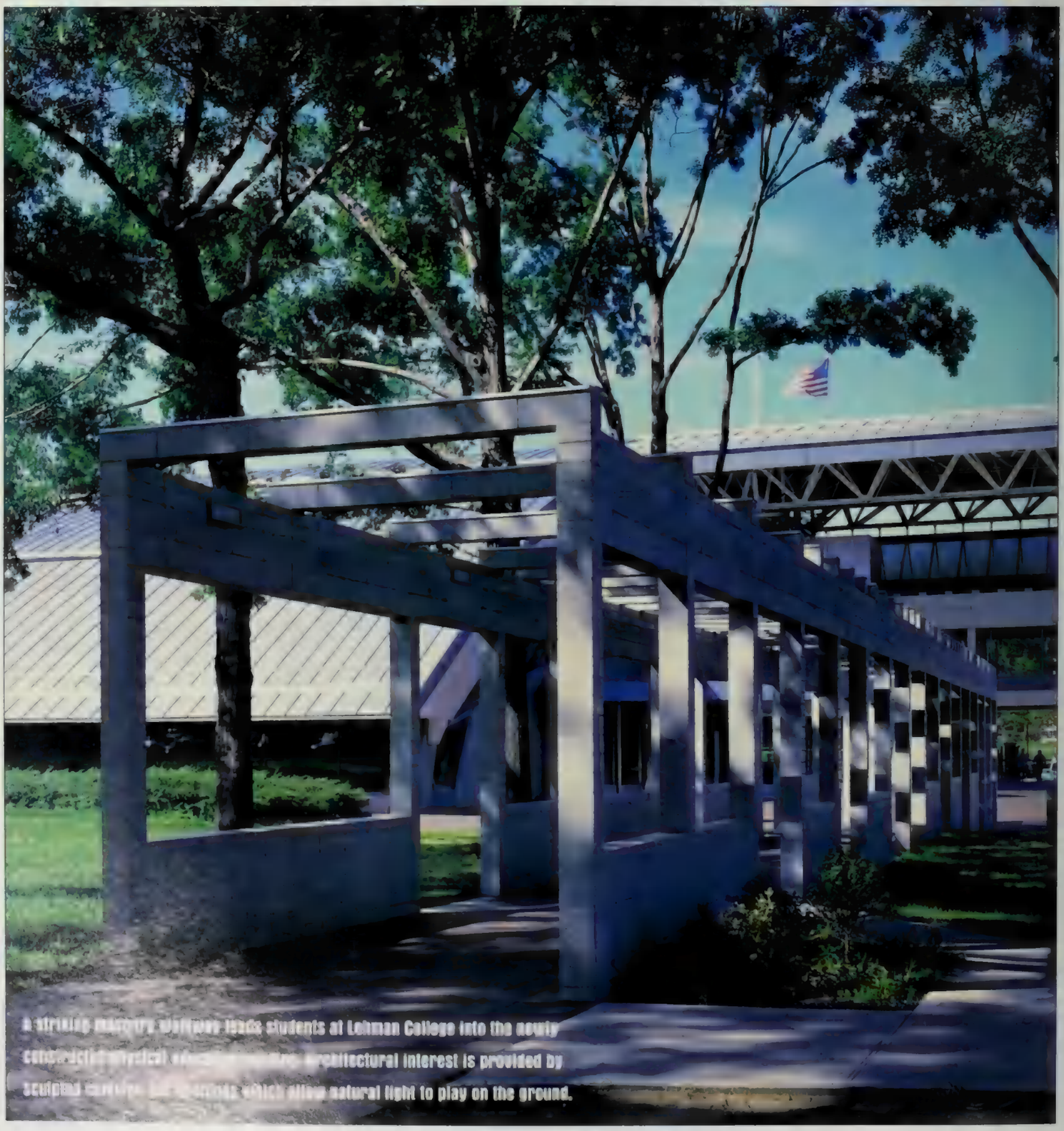


Photo by Hayman Studio of Commercial Photography, Inc.

The walkway, Ferrara says, is an "experience of slats; windows and doorways; walls and columns; sunlight and shadows, with incremental roof spaces offset by openings in the walls. Sunlight streams though these openings, making dramatic shadow plays on the walls and floor."

Working within a limited budget, the gymnasium's project manager suggested Ferrara use block for cost effectiveness. It was also an easy product to work with, she says. Using concrete masonry in the walkway structure provided a continuation of the materials used inside the building itself.



A striking masonry walkway leads students at Lehman College into the newly constructed physical education building. Architectural interest is provided by sculpted concrete masonry units which allow natural light to play on the ground.

Photo by Rauman Studio of Commerce, New



Brightly colored masonry units welcome visitors to this York, PA, health education center. A banding effect was achieved through the combination of split-face units and glazed brick.

"I'm an artist," says Ferrara. "I like architectural features that can be entered, climbed or walked through. In this project, the slatted top does wonderful things with light, changing as the sun moves."

Ferrara used a gray, split-face unit. Having never worked with block before, she was artistically intrigued by the material's shape and size. "I would love to use block again," says Ferrara. "I think this is one of my best pieces."

Susan P. Byrnes Health Education Center, York, Pennsylvania

Visually exciting for the children who learn there, the architectural goal for the Susan P. Byrnes Health Education Center's facade was an animated, memorable frontage. Colored, glazed masonry units achieved this effect superbly.

At a cost of $1.2 million, the 20,000-square-foot York, PA, structure provides a facility where school-age children can learn about health issues via hands-on, elaborate exhibits. Located on a main thoroughfare, the building is highly visible, a unique landmark as a consequence of its multi-colored exterior. Aside from glazed concrete masonry units at the entrance, a banding effect was achieved by combining split-face units with glazed concrete brick.

"We used a glazed masonry product at the entrance for its durability and colorful qualities," says Todd Grove, associate with Murphy and Dittenhafer, Inc., York, PA. "Since the facility was geared toward the education of young children, the use of color was important," he says. In addition, the client wanted a maintenance-free exterior. "Concrete masonry meets that criteria," says Grove. "Its durability and longevity were welcome benefits as well."

Grove likes to use concrete masonry. "We specify it a lot. It's an appropriate material for many of the buildings we're designing. It's also economical and can achieve a broad range of interesting textures, colors and effects," he says.

Lower Photo by Erik Rusley, Rusley Design

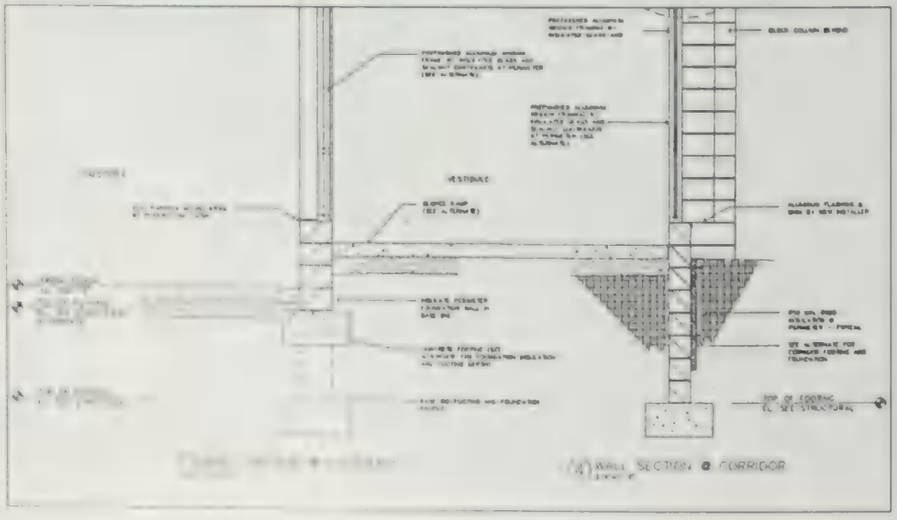


Above: The main entry and gymnasium addition move from dark split-face block to a lighter mix of smooth and split-face units. The structure meets the sky in a glazed banding pattern modeled after traditional Ojibwe beadwork.

Lac Courte Oreilles Ojibwe School Renovation, Hayward, Wisconsin

Aesthetically designed to embody the symbolism of nature and the colors of the Ojibwe culture, this school's renovation required bringing the existing building into compliance with safety codes and upgrading the facility by adding a new gymnasium and cafeteria. Natural materials and traditional tribal symbols are an integral part of the total design.

The school is one piece of a masterplan for the entire tribal area, a part of a series of circles which constitute the masterplan's overall scheme. The circle's perimeter is the site for the school and all of its buildings are located on this perimeter.



Architect Dean Dovolis of Dovolis Johnson & Ruggieri, Inc., Minneapolis, MN, selected natural-colored concrete masonry in a mix of split-face and smooth units. This arrangement gives the illusion of moving up the exterior walls from darker to lighter hues, symbolizing nature's blossoming from the prairie. Colored masonry banding in a floral arrangement captures the traditional Ojibwe floral beading pattern sewn by the elders. Its colored garland appears to hold the building together.

This is a powerful example of masonry's versatility. Used here as an art form, concrete masonry units serve a practical construction function, but add unique architectural interest at the same time.

On the interior, concrete block walls are decorated with designs using the colors of the Great Circle, ensuring a continuity of theme inside and out. The four colors represent the four compass directions and further symbolize the earth, sky, water and fire. Atriums were added, allowing the natural environment inside, connecting nature to life at the circle's rim where tradition and future meet.

Paul Cummins Library at Crossroads School, Santa Monica, CA

Winner of a 1997 National AIA Design Award, the Paul Cummins Library is located at a progressive secondary school in Santa Monica, CA, with a quintessential Southern California urban campus. The new 10,500-square-foot library is wedged between a bordering street and the campus alley, rising from the alley to create an urban edge and strong public presence.

Approximately 5,000 square feet of concrete masonry adorns the structure, giving it strong curb appeal.

The architectural palette was developed from a program mandating inexpensive, durable materials. Architect Steven Ehrlich, principal of Steven Ehrlich Architects, Santa Monica, CA, says he likes the durable quality of concrete masonry material. "It has an ageless quality and I appreciate its texture and scale," he says.

The zero lot line condition here means that the library building is sandwiched up against other buildings. For this reason, concrete masonry material was well suited, says Ehrlich, explaining that since the block is finished on both sides, it can be built right up against an existing structure and has fireproofing requirements built into the very nature of the material.

On one property line, the block acts as a mass that holds the service elements of the building, including the elevator, stairway and bathrooms. Black, combed block with small fluted lines etched in it was selected for its textural qualities. "We used a rake joint to fully express the nature of the material. This is a set in the joint that reveals a shadow line," Ehrlich says. On the inside, an exposed masonry wall in green units with a custom green grout was chosen to "create a monolithic wall, subtly expressed," he adds.

Ehrlich says he specifies block a great deal, attracted to what he terms its "primitive" or timeless quality.



Left: An architectural "wedge" rises out of a campus alley to house the Paul Cummins Library. Construction of this project included approximately [illegible] square feet of concrete masonry

Photography by Erhard Pfeiffer

Looking Ahead...

Concrete Masonry in Residential.
Be sure to look for our next issue in the coming months.

Private Residence, Leesburg, Virginia

Eight-thousand square feet of house in Leesburg, VA, is testimony to the visual attraction of concrete masonry's split-face block.

"We used a lot of smooth precast in the home's construction and needed a rougher block as a contrast," says LaRock. Two different size units were combined to establish a subtlety of scale between the base and body of the house. Block also gave the architect a means for raising the basement elevation. The foundation wall is a combination of poured concrete and block units.

Helping to break up the monotony of a large expanse of landscaping an outdoor patio was covered with unit concrete pavers in gray and white.



Right: In a white, split face which achieved the owner's desire for a rusticated appearance, concrete masonry units grace a spectacular Leesburg, VA, home.

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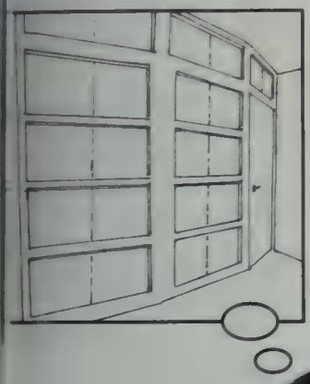
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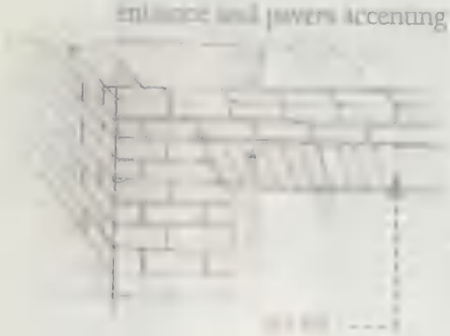
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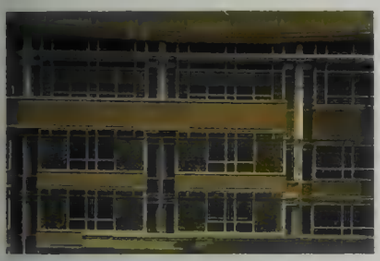
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HEALTHCARE FACILITIES

Whither the Hospital?

THE ROLE OF THE HOSPITAL IS BEING EATEN AWAY BY SPECIALIZED FACILITIES AND CLINICS, BUT AMBULATORY-CARE WINGS AND EVEN REPLACEMENT HOSPITALS ARE STILL BEING BUILT.

by Clifford Pearson



1

Boston, Massachusetts

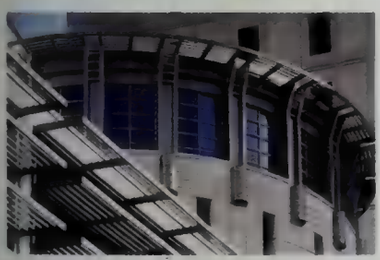
Three architectural firms work together to create a state-of-the-art ambulatory-care clinic that's also a good urban neighbor.



2

Sharon, Connecticut

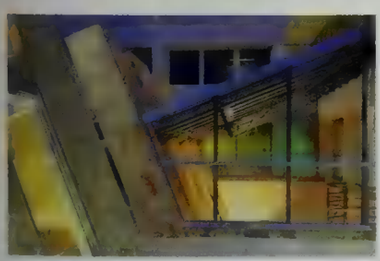
Perkins & Will brings a rural hospital into the new era of outpatient care, giving it a whole new front and an array of renovated spaces.



3

Altoona, Pennsylvania

A seven-story drum and a four-story concourse act as a hinge connecting a new outpatient-care facility with a traditional 1970's hospital.



4

Berkeley, California

Given the lower two floors of an existing hospital and a loading dock, Rochlin Baran & Balbona found a way of bringing the sun into a cancer clinic.

With so much change happening in the way healthcare is paid for and provided, it is no wonder the industry seems to be going in several different—and sometimes contradictory—directions at the same time. Hospital construction is down significantly from its peak earlier in the decade, but other kinds of healthcare facilities (including neighborhood clinics, specialty-care facilities, and long-term-care centers) are being built faster than ever before. Giant healthcare companies are closing many hospitals as they acquire or merge with other providers, but some of these companies are also building large replacement hospitals and ambulatory-care wings. The result is that while the field as a whole remains relatively strong, there is a great deal of change happening just below the surface.

Spending on healthcare construction is clearly going in two directions, according to figures compiled by the F.W. Dodge division of The McGraw-Hill Companies. After reaching $6.784 billion in 1992, the value of construction contract awards for hospitals decreased every year, hitting $5.281 billion last year. The amount of hospital construction followed a similar path during this period, going from 37.0 million sq ft in 1992 to just 23.1 million sq ft in 1996. But the building of "other" healthcare facilities (all those neighborhood care centers, specialty clinics, and nursing homes) rose significantly, moving from $4.076 billion (39.8 million sq ft) in 1992 to $5.570 billion (52.7 million sq ft) last year. So while the grand total for all health facilities was nearly constant—$10.851 billion in 1996 compared with $10.860 in 1992—the types of buildings being constructed have changed dramatically.

Don't expect the winds of change to die down any time soon. "The pace of change in the healthcare industry will only get faster in the next few years," states Wanda F. Jones, a healthcare consultant and the president of the New Century Healthcare Institute, a nonprofit research group. Rather than being at the start of a new era, Jones sees the industry still "at the tail end of the old system." According to Jones, "we still have too many [medical] specialists" who emphasize the kind of expensive care found at large regional hospitals and not enough primary-care physicians for the neighborhood clinics needed to bring preventive medicine to a broader population. And we still have the wrong kinds of facilities—meaning large hospitals that grew piecemeal over the years with too many beds and floorplans that require too much staff. As a result, the shake-out in healthcare that has set off a wave of mergers, consolidations, and closings over the last several years will continue, says Jones.

As experts have been saying for years, the future lies with ambu-



Instead of renovating two existing campuses, Baptist Memorial in North Little Rock, Ark., hired HKS to design a replacement hospital.

latory care rather than inpatient facilities, small community-based healthcare centers rather than large centralized hospitals, patient-friendly environments with plenty of daylight and residential touches rather than cold-looking institutions designed for the convenience of doctors.

While some architects fear that the healthcare industry's drive for cost-efficiencies will push quality design out of the picture, Don Blair, AIA, a principal at Perkins & Will's New York City office, believes just the opposite. "By the year 2000, all healthcare providers will be low-cost providers," says Blair. "So consumer decisions will be based on: 1. the quality of care, which is difficult for the typical person to judge, and 2. the quality of service, which is much easier to discern." Since the attractiveness of facilities is a key aspect of the perceived level of service, the design of the physical environment will be increasingly important, asserts Blair.

Can architects show that good design pays off?

But it is also incumbent on architects to show how design can address the issues facing healthcare providers. For example, if architecture can reduce the number of employees needed to run a hospital, all kinds of opportunities can arise. The annual cost of one full-time staff person with benefits is between $50,000 and $60,000, which is equivalent to the debt service on $1 million worth of borrowing, notes Blair. So reducing a hospital's long-term operating costs can loosen up dollars for construction.

One part of the hospital that architects are redesigning for more efficiency is the patient floor. By organizing patient rooms into a continuous ring, rather than in discreet wings of a cruciform plan, architects allow fewer nurses to watch over more patients, says Blair. And by rationalizing circulation, new hospitals often need less security staff.

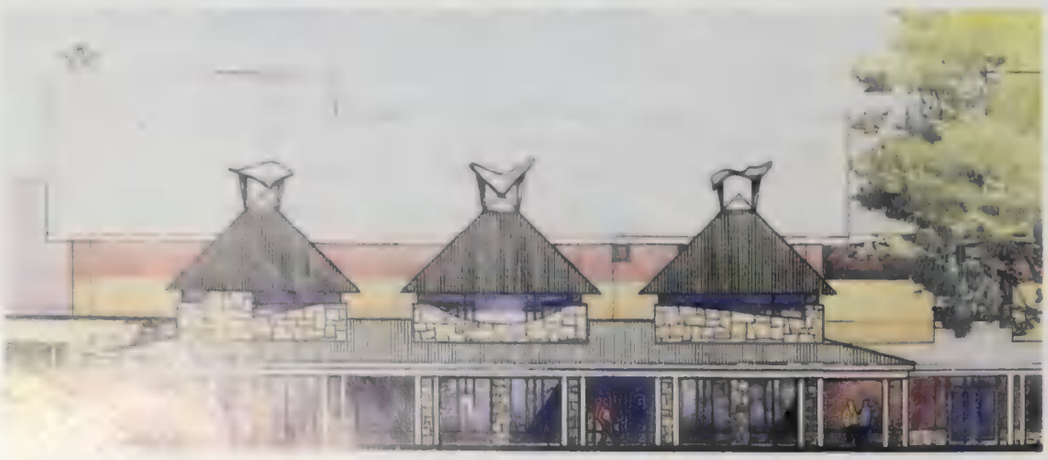
The Three Bridges LifeCare Community (below) in Santa Rosa, Calif., designed by SMP, offers a range of care on a 69-acre site.

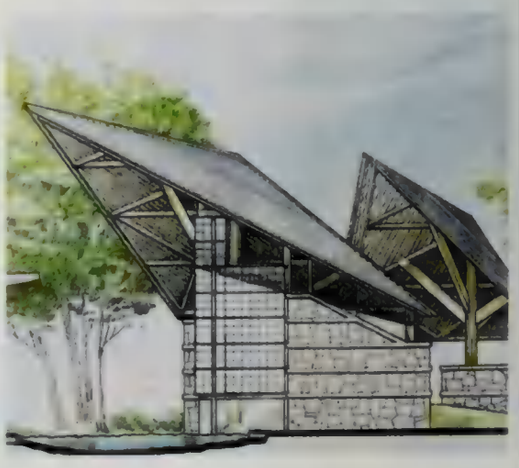
In an effort to demonstrate the impact of design, the Center for Health Design is set to launch a three-year study with the Picker Institute in Boston that will measure the influence of the physical environment on patient satisfaction and wellbeing, states Wayne Ruga, the president and CEO of the Center. The study will look at the design of acute-care, ambulatory-care, and long-term-care facilities "through the eyes of the patient." The Center has also started working with the Joint Commission on the Accreditation of Healthcare Organizations to establish standards for incorporating the quality of facility design in the process of accreditating hospitals. The goal of both of these projects is to provide empirical evidence of the benefits of good design on patient care.

For many years, the most important advances in medical technology were large pieces of equipment—magnetic resonance imaging equipment, for example—that required large, specialized spaces. "Today, the important advances—like electronic data networks—are all small," says Morris Stein, AIA, president of the Stein-Cox Group architects and president of the AIA's Academy of Architecture for Health. Although they occupy little space, these new computer technologies may have a big impact on healthcare facilities—decentralizing functions within hospitals and even decentralizing hospitals themselves. Hand-held computers and portable diagnostic equipment, for example, are enabling doctors and nurses to bring more care to the patient room, reducing the need to wheel patients around the hospital. Instead of taking the patient to a special room for tests, the tests come to the patient. Electronic data networks are also reducing the need for large filing systems at nursing stations.

To accommodate this new equipment, patient rooms will have to get bigger. But this increase should be more than offset by decreases in other parts of the hospital, such as fewer or smaller diagnostic rooms and smaller nursing stations. Stein also envisions entirely new ways of organizing medical care. For example, some hospitals are thinking of putting all minimally invasive procedures together, rather than sticking to the traditional organization by department (cardiology, radiology, urology, etc.), says Stein. Ultimately, the electronic storage and sharing of information and records might allow more functions to happen outside the hospital.

With insurers and managed-care providers trying to reduce expensive hospital stays and establish beachheads in a large number of communities, there will be a growing emphasis on satellite, rather than hub, facilities. More people will receive care at these less costly neighborhood clinics and only the very sick will go to the big regional hospitals. "You'll see more small projects and probably fewer big hospitals being built," states Ruga. Community-based, many of these clinics will be placed where people already go—like the shopping center, community center, or workplace, says Ruga. Primary healthcare facilities might even be used as drawing cards by developers of new residential communities, says Stein.







A small mental health center (right) in Zumarraga, Spain, was designed by architect José A. Pizarro Asenjo for the Basque Government Ministry of Health.

So is the large hospital project a thing of the past? Hardly. In fact, a new wave of replacement hospitals is gathering momentum as mergers and consolidations force healthcare providers to examine their facility needs. After inheriting disparate and often outdated facilities, many of these providers are finding it is less expensive in the long run to build entirely new campuses. "We're doing a lot of replacement hospitals," states Perkins & Will's Blair. "It's often cheaper than trying to change old buildings. If the chassis is wrong, it's better to start fresh."

A replacement hospital grows in Arkansas

That's exactly what happened in North Little Rock, Ark., where the Baptist Memorial Medical Center decided to start from scratch instead of tinker with its old facilities. The advantages of this approach, says Jones, who worked as a consultant on the project, include an easier-to-reach location, greater efficiencies, and the latest technology. The $95-million project, designed by HKS of Dallas, will have just 110 beds—half the number as the old hospital—but will be an integrated campus where all patient rooms look onto a "village green," and a "medical village" will offer retail services such as an optical store, pharmacy, and hearing-aids outlet, as well as cottages for the families of patients. A cluster testing area will reduce the need to move patients to different departments for various tests, and patient rooms will be flexible enough to let more diagnostic and treatment procedures to happen at bedside.

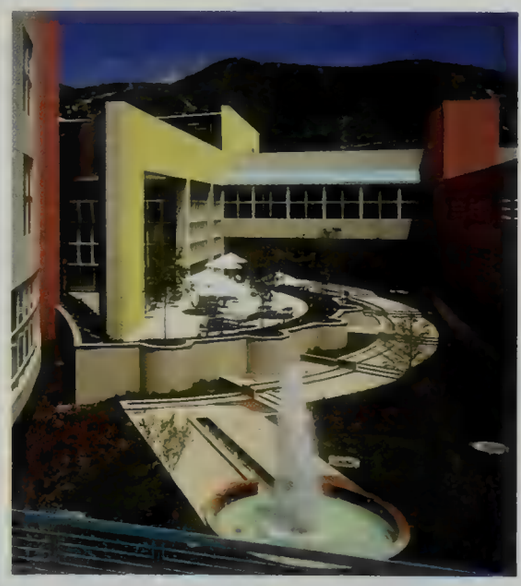
Perkins & Will has two replacement hospitals under construction—Veterans Memorial Medical Center in Meriden, Conn., and Greenwich Hospital in Greenwich, Conn.—and a third in design. In 1992, Greenwich Hospital was on the verge of renovating its existing facilities and adding a new outpatient center, when it decided to reevaluate its master plan. Examining its future market under a managed-care model, the hospital determined that most of its existing facilities were unable to accommodate new technologies and operational strategies, says Blair. As a result, it decided to build an entirely new facility on its existing campus.

Not every hospital, though, has the chance to start with a clean slate. So to keep up with changes in the medical field, many hospitals are undergoing major renovations and adding new facilities. Ambulatory- and specialty-care (such as cancer and women's health) centers are at the top of the list of facilities being added to existing institutions. (See following stories in this Building Types Study.) Some hospitals are even considering building long-term-care facilities adjacent to their campuses. For example, Baptist Memorial in North Little Rock has set aside land that might be used in the future for such a facility, reports Jones. An aging population is creating the need for facilities that combine the residential and the medical. In Santa Rosa, Calif., Stone Marraccini Patterson (SMP) Architecture is designing the Three Bridges LifeCare Community, which will provide a continuum of care, from independent living to an Alzheimer's group home and a skilled-nursing center (opposite below).

Although there is a compelling need for mental-health clinics, says Jones, healthcare and insurance plans in the U.S. are hesitant to cover extensive therapies. Some other countries, though, are doing more to build mental-health facilities. One small project in Zumarraga, Spain, designed by José A. Pizarro Asenjo, is a 3,500-sq-ft mental-health clinic that brings a sense of poetry to a once-dreary building type (above).

As architecture becomes a more global profession, more U.S. firms are working abroad. After putting up hordes of highrise office buildings, shopping centers, and hotels in the last decade, a number of developing countries are now looking for American expertise in building modern healthcare systems. "In the last two or three years, we've gotten more inquiries from abroad," says James Pine, AIA, the national director of healthcare for Henningson, Durham & Richardson (HDR), a large Omaha, Nebraska-based firm that has worked on healthcare projects in Mexico, South America, the Middle East, and England. "There's a larger middle class now in some of these developing countries, so there's growing demand for healthcare," notes Pine. Last year, HDR completed construction of a $20-million hospital in Monterrey, Mexico (below).

With the healthcare field continuing to evolve, architects will have to think in terms of smaller, neighborhood-based facilities, and buildings for an aging population. But the hospital isn't dead yet and its future may be brightest south of the border and across the ocean. ■



Designed by HDR, Centro Medico Integral Hospital Santa Engracia (left) is a 118,000-sq-ft, 50-bed facility for women and children in Monterrey, Mexico. The Omaha, Nebraska, architecture firm is working on other healthcare projects abroad.

1 Shapiro Clinical Center Boston, Massachusetts

A NEW AMBULATORY-CARE CENTER ENCOMPASSES AN OLD BUILDING ON SITE AND BECOMES A HUB FOR A LARGE REGIONAL HOSPITAL COMPLEX.

by Clifford Pearson

Project: *Carl J. Shapiro Clinical Center Beth Israel Deaconess Medical Center, Boston, Massachusetts*
Architect: *Rothman Partners—Martha L. Rothman, FAIA, project director; Patricia DeLauri, AIA, Terry Kenyon, AIA, Alan Lewis, AIA, Scott McQuide, AIA, Mimi Moncier, Margery Morgan, Joseph Morog, AIA, Derek Noble, Alan Peterson, Elliot Paul Rothman, AIA, David Schmidt, C. Day Thomson, AIA, Vera Van Middlesworth, design team*
Consulting Architects: *Chan Krieger & Associates—Alex Krieger, AIA, Morgan Fleisig, Tom Sieniewicz, AIA; Solomon + Bauer Architects—Stuart B. Solomon, FAIA, Susan T. Erickson, John Martin, Mary O'Looney*
Consultants: *Lloy Hack Associates (interiors); Child Associates (landscape design)*
Engineers: *LeMessurier Consultants (structural); Lottero + Mason Associates (electrical); Vanesse Hangen Brustlin, Inc. (civil)*
Contractors: *Macomber Construction (exterior building shell); Beacon Construction (interior fit-out); Kiewit Eastern (subgrade parking structure)*

Statistics
Size: *695,800 sq ft (including parking)*
Key components: *New ambulatory care center with five levels of parking below and street access*
Design challenges: *Integrating facade of old college building; [illegible] building; [illegible] hospital*

Built during a time of incredible change in the healthcare industry, the new Shapiro Clinical Center bridges different eras both literally and figuratively. When it was begun, the 695,000-sq-ft, $170-million facility was to bring together Beth Israel Hospital's dispersed ambulatory-care and clinical-education functions. Shortly after the building was completed, Beth Israel merged with two of its neighbors—Deaconess and Mt. Auburn hospitals. Since all of these institutions—like most healthcare providers today—are emphasizing outpatient care, the Shapiro Center became even more important after the consolidation. And its location at the intersection of the Beth Israel and Deaconess campuses is more fortuitous now than ever before.

"This building was created in recognition of the growing predominance of ambulatory care," says Dr. Mitchell Rabkin, who had been the head of Beth Israel and is now the chief executive officer of CareGroup, the new parent corporation of the three merged hospitals. According to Rabkin, nearly 65 percent of all surgeries today do not require patients to spend a night at the hospital.

The driving idea behind the design of the Shapiro Center, says Rabkin, was to make visiting the facility as easy and pleasant for the patient as possible. "We wanted to create a seamless experience for patients to get here and get care," states Francis J. Sullivan, vice president of facilities planning and engineering for Beth Israel-Deaconess Hospital. "It used to be that patients would have to go to a lot of different facilities for ambulatory-care treatment," remembers Sullivan. "That wasn't the best way of providing care and we decided to change it."

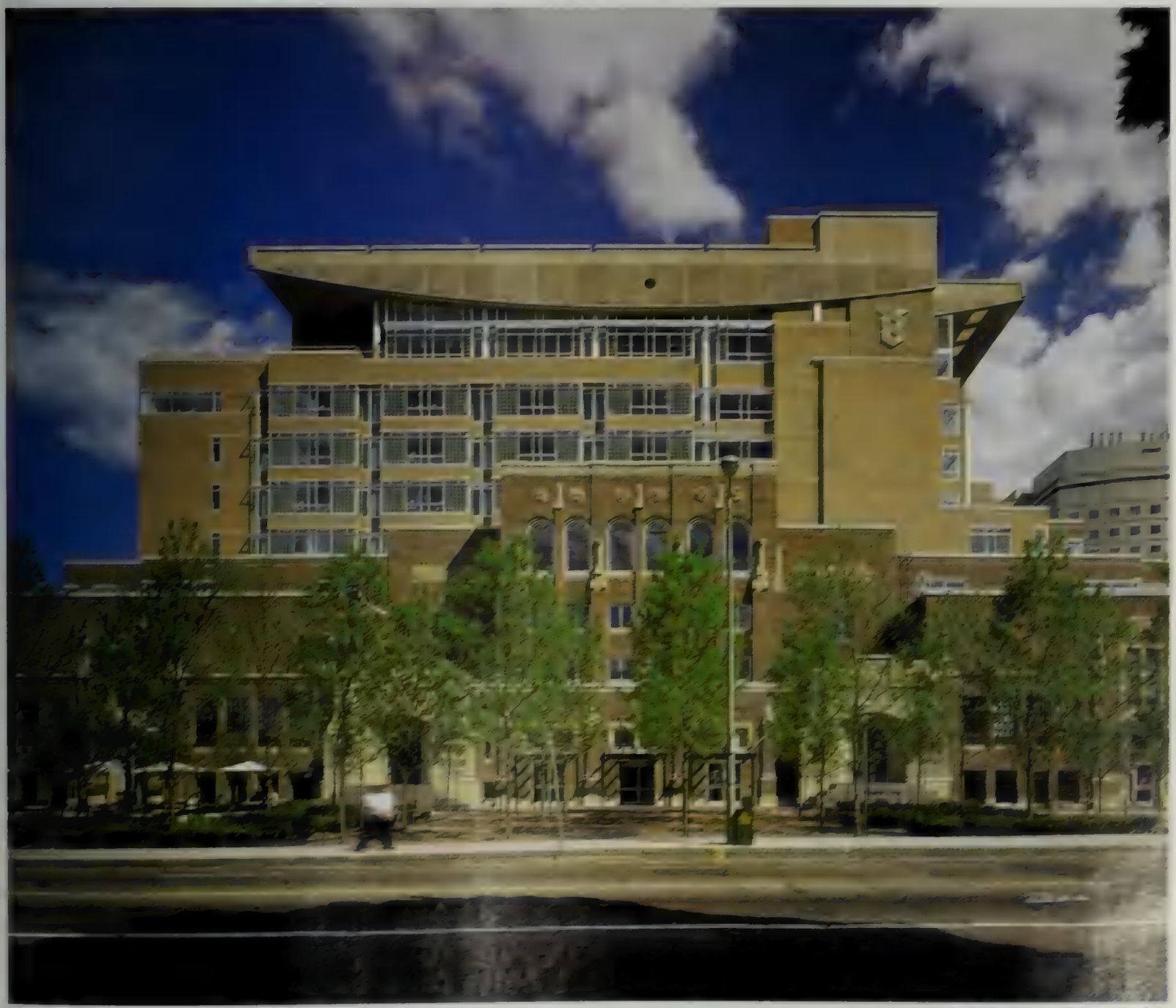
That meant not only consolidating ambulatory care into one building, but providing five floors of underground parking and designing the building so that patient flow is direct and easy. Rather than bring all patients to a central reception area and make them wait there, the design lets people move directly from their cars to the departments where they will be treated. "The idea was to create the experience of going to a doctor's office rather than a hospital," explains Martha Rothman, FAIA, the principal-in-charge for Rothman Partners, one of the three architectural firms involved in the project.



Vehicular access to the clinic is from Binney Street on the east side of the site (above). Pedestrians enter from Brookline Avenue (opposite), where a sidewalk cafe, trees, and the facade of the old Massachusetts College of Art create a strong street presence.

1. *Existing building*
2. *Atrium*
3. *Lower atrium*
4. *Parking*
5. *Drop-off*
6. *Family lounge*
7. *Outpatient suite*
8. *Public corridor*
9. *Boardroom*
10. *Mechanical*







1. *Atrium*
2. *Café*
3. *Patient & family learning center*
4. *Loading dock*
5. *Lower atrium*





The decentralization of functions within the hospital is being driven by two forces: a concern for the needs of the patient and new technologies that allow information and diagnostic capabilities to be widely distributed, says Alex Krieger, AIA, the principal-in-charge for Chan Krieger & Associates.

Once patients arrive at the proper department, they check in at a reception desk, then can sit in a small waiting area before moving just a few steps to procedure rooms and exam rooms. Although floors are 30,000 sq ft, they don't feel overwhelming because each one is divided into easily recognizable suites or departments and each department is clearly organized into three zones—public waiting areas, support and procedure rooms, and private exam rooms.

By placing waiting rooms and the corridor connecting various departments on each floor on the west edge of the building, the architects were able to open all these spaces to daylight and views. Exam rooms wrap around the north and east edges of the building, allowing all of them to have views and sunlight as well.

While visitors walk to departments by way of the curtain-walled corridor on the west side of the new tower, doctors and staff have continuous access to all departments by way of an interior corridor on the east side of the building. Because no partitions separate departments on this side of the building, exam rooms can be used by adjacent departments depending on work loads at any particular time. This sharing is also encouraged by having most exam rooms identical in layout and size (128 sq ft), pushing them close to the goal of developing "universal" examination and patient rooms. Specialized equipment and instruments can be brought into the exam rooms on carts if needed.

"Pods" of four exam rooms form the basic planning module in each department, a scheme that is expressed in the brick, glass, and glass-block bays projecting from the building's east and south facades.

Even in the exam rooms and support areas, the level of finishes and materials is high: carpeting, steamed-beech cabinetwork, and attractive chairs and furniture. "There's no back-of-the-house here in terms of quality," states Rothman.

Surgery takes place on the third floor, where a bridge to the inpatient hospital allows doctors and staff to move from one facility to another. This connection also makes it easy to move patients to the inpatient wing, if complications arise and an overnight stay is needed.

An L-shaped recovery area wraps around two sides of the building, offering patients views outdoors and the chance to see sunlight as they awake from surgery.

For family members waiting for patients, a lounge area offers comfortable chairs, desks, electrical

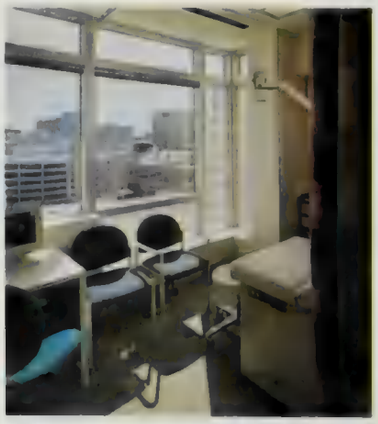
Arched windows of the old MCA building overlook the atrium (top left), where a skylight and clerestories (right) bring in light and waiting areas wrap around upper levels (opposite).



1. *Family lounge*
2. *Recovery*
3. *Pre-op holding*
4. *Reception*
5. *Pre-op testing*
6. *Operating*
7. *Clean core*
8. *Staff lounge*
9. *CPD*
10. *Bridge to inpatient surgery*



Daylight plays an important role in orienting visitors and creating a less-stressful environment in exam rooms (below), the post-op recovery area (bottom), and public corridors (opposite).





outlets, and phone jacks for laptop computers (popular features with Boston-area residents).

One of the challenges of the project was incorporating part of an existing landmark—the old Massachusetts College of Art (MCA) building—in the design of the new facility. In the end, the architects used the old four-story structure as an entry pavilion along Brookline Avenue and created a five-story skylit atrium behind it that acts as the central orienting space for the whole project. The upper floors of the MCA building now provide visitors with waiting areas graced by Gothic windows on one side and views of the atrium on the other.

Integrating pedestrian access from Brookline Avenue on the west and Longwood Avenue on the south, as well as drop-off visitors from Binney Street on the east, the atrium serves as the Shapiro Center's hub. Reinforcing this role are a pharmacy, a Starbucks cafe, and a small restaurant all feeding into the tall space. And in good weather, there's a landscaped terrace on Brookline Avenue with tables and trees.

While hospitals are often disruptive elements in a city's urban fabric, the Shapiro Clinical Center works hard to be a good neighbor. In addition to the sidewalk cafe that brings life to the long facade on Brookline Avenue, the building borrows the brick-and-bays architecture found in the Boston area. Three different kinds of brick, including a glazed product, work with glass block and glazing to create textured facades. While the facade treatments vary to reflect different functions of spaces inside, a unified palette of materials keeps them coordinated on the outside.

A steel-frame structure, the $170-million Shapiro Center was designed to support as many as nine extra floors that can be added in the future. With its sweeping roof and its prominent location, the building is already a landmark. "This was such a prized site," says Rothman. "We knew we had the chance to establish an image for the hospital of the '90's." ■

Manufacturers' Sources

Brick: *Sioux City (Fine Arts Velour and Doeskin)*
Glazed brick: *Ceramitec*
Elastomeric roofing: *Carlisle*
Aluminum windows: *Wausau Metals*
Historic replacement windows: *Custom Window Corp.*
Low-E coated glass: *Viracon*
Skylights: *United Skys*
Entrance doors: *Vistawall and Kawneer*
Wood doors: *Eggers (European steamed-beech veneer)*
Sliding/breakaway ICU doors: *Horton*
Automatic revolving doors: *Besam (Entrematic)*
Interior all-glass doors: *ACI*
Locksets: *Schlage*
Hinges: *Stanley*
Exit devices: *Von Duprin*
Acoustical ceiling: *Celotex (Chase Celotone)*
Operable partitions: *Modernfold*
Paint: *Polomyx*
Plastic laminate: *Formica*
Countertops: *Surell*
Floor tile: *American Olean*
Resilient flooring: *Armstrong (Medintech and Stonetex)*
Carpet: *Interface*
Raised flooring: *Tate*
Office furniture and tables: *Haworth*
Reception chairs: *David Edward*
Task chairs: *Herman Miller*
Interior ambient lighting: *Litecontrol, Winona, Visa*
Downlights: *Staff*
Wall sconces: *Baldinger*



1. *Patient elevators*
2. *Practice suite*
3. *Reception*
4. *Work*
5. *Examination*
6. *Procedure*
7. *Staff elevators*



2 Sharon Hospital Sharon, Connecticut

IN RURAL CONNECTICUT, PERKINS & WILL GIVES A HOSPITAL A NEW OUTPATIENT FOCUS WITH A MODERN ADDITION AND A MAJOR RENOVATION.

by Andrea Oppenheimer Dean

Project: *Sharon Hospital Addition and Renovation*
Sharon, Connecticut
Architect: *Perkins & Will—Donald Blair, AIA, principal-in-charge; Lisa Gould, AIA, project designer; Tom Lurcott, AIA, project director; Polly Carpenter, Carlo Panfillo, project architects; Tama Duffy, Neil Frankel, interiors principals; Richard Brennan, Barry Shapiro, Mimi Garza, project team*
Engineers: *Selnick/Harwood (structural); van Zelm, Heywood, Shadford (mechanical/electrical/plumbing); Rollett Engineering Associates (civil)*
General Contractor: *O & G Industries*

Statistics
Size: *60,000 sq ft*
Key components: *New two-story entry wing to an existing rural hospital, new courtyard between old building and new, reorganized circulation along a glazed perimeter corridor, consolidated outpatient services on one floor, new operating suite, 32 redesigned patient rooms, new cafeteria and kitchen in basement.*
Design challenges: *Convert a hospital with an inpatient focus to one that emphasizes outpatient care. Create a new, coherent image for a facility that grew piecemeal over the years, and provide a master plan for future changes.*

Fifty or 60 years ago, a community's first hospital signaled a new affluence and sophistication. The hospital was designed and constructed as a civic symbol like the town hall or local high school. But since the 1960's, most new community hospitals have looked like nothing special. In designing an addition for Sharon Hospital—a small facility in rural, northwestern Connecticut—Perkins & Will sought to "bring back the conviction that these are civic facilities and should represent the quality of the community and the quality of the care," states Don Blair, AIA, the principal-in-charge of the project.

The idea of reviving the stature of the community hospital is taking hold nationwide, a result, in part, of the competition among hospitals to market themselves for survival. The design of Sharon Hospital's addition reflects a trend among hospitals not only to compete by appealing to new and older patients while cutting costs, but also to shift their emphasis from acute inpatient care to outpatient care.

In an attempt to overlay Sharon Hospital's hodgepodge of prosaic postwar additions with a coherent image, Perkins & Will designed the two-story, 60,000-sq-ft addition as an entry wing composed primarily of brick and precast concrete painted white to match the color of the existing wings. It appears as a carved cube embedded in the lush foothills of the Berkshires while reaching outward via a design vocabulary that "reinterprets small-scale New England architecture to fit a Modern vocabulary," says Lisa Gould, AIA, the project designer. The entry canopy of exposed painted steel is meant to recall the traditional porte cochere; the waiting area in the sun-filled perimeter corridor is a reminder of the ubiquitous New England porch; and the two-story lobby harks back to the family parlor. Wrapping and unifying these elements is a skin of masonry, glazing, aluminum panels, and sunshades whose esthetic extends into the building's, right down to a system of detailing for the nursing stations, reception desks, and wall protectors. The idea, says Blair, "is to elevate residential architecture to civic function, while giving it a friendly, comforting face." To convey a feeling of warmth and comfort, there is indirect lighting, ample use of wood, and the occasional green-colored accent wall. The look is more hospitality, in the best sense of the word, than hospital.

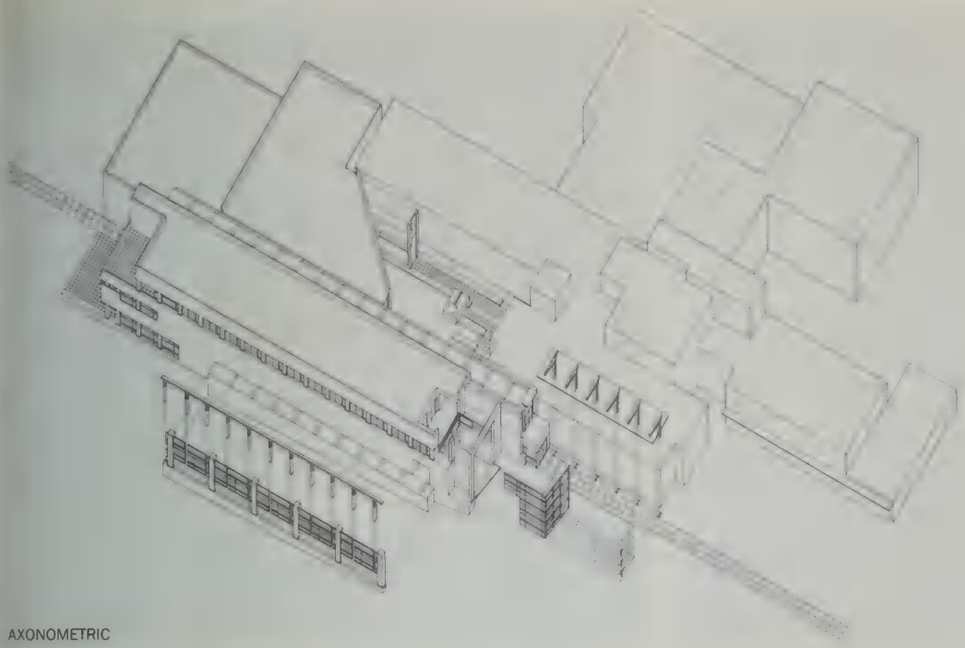
In retooling the hospital for outpatient use, the architects moved the hospital's entrance, which was at the back of the building with the emergency-room entry, to a friendlier front facade location. On the first floor, they created a new circulation system that follows along the glazed perimeter, while a courtyard connects new outpatient spaces



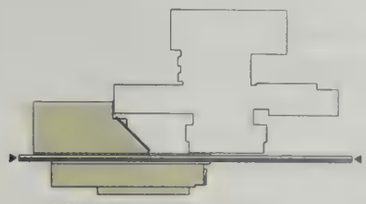
SITE PLAN

1. *Addition*
2. *Courtyard*
3. *Existing*

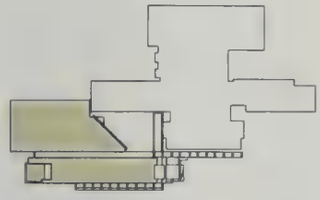
Andrea Oppenheimer Dean is a contributing editor of RECORD *and an editor at large of* Preservation *magazine. She is also a fellow of the American Academy in Rome and a former executive editor of* Architecture *magazine.*



AXONOMETRIC



CIRCULATION SPINE



PUBLIC SEQUENCE







A system of glazed openings, aluminum panels, and sunshades wraps the addition and unifies the complex (above and left).

The design of the project was conceived as a series of programmatic blocks flanking ■ circulation spine (diagrams top).

1. *Waiting*
2. *Nursing unit*
3. *Solarium*
4. *Terrace*
5. *Pediatrics unit*
6. *Nursing administration*
7. *Labor and delivery*
8. *O.B. unit*



SECOND FLOOR

1. *Main entry*
2. *Lobby*
3. *Chapel*
4. *Courtyard*
5. *Diagnostic testing*
6. *Physical therapy*
7. *Surgical suite*
8. *Recovery*
9. *Outpatient holding*
10. *ICU*
11. *Emergency*
12. *Radiology*
13. *Administration*







A solarium with an adjacent terrace (far left) and a corridor (below) bring sunlight and views of the Berkshires inside the hospital. Patient rooms (left) form a continuous ring for easy supervision by nurses.

and existing inpatient services. At almost every point on the way, there are views of the landscape intended to be a calming influence on people in stressful circumstances. Short corridors and clearly marked destinations also help reduce the level of stress.

Because the majority of outpatient visits are for testing, diagnosis, or physical rehabilitation—services that had been scattered in former inpatient areas—the architects consolidated these functions on the first floor. As a result, outpatients are routinely treated without encountering the seriously ill or grievously injured. "It's a much friendlier environment," says Blair. The clustering of services has also made the hospital's operation more efficient. According to facility manager Philip Hathaway, Sharon Hospital has been able to add 58,000 sq ft of space without hiring new full-time staff.

The hospital's most urgent need was a state-of-the-art operating suite to replace 30-year-old facilities on the third floor. Because rooms used to prepare patients for surgery were on the second level, outpatients, who were already absorbing 70 percent of the operating suite's capacity when the project was in the planning stage, had to be wheeled from level to level on elevators, Hathaway says.

The inefficiency led hospital administrators to move all aspects of surgery to the first floor of the new wing. Equally important, says Hathaway, the 10-ft-6-in floor-to-floor heights in the existing structure couldn't accommodate today's equipment. To obtain the needed 12-ft floor-to-floor heights, the design and construction team added 18 in. to both the first and second stories, and knit old and new together with pedestrian ramps. On the new first story, they also created areas sufficiently large to accommodate groupings of related services.

On its second floor, the addition has 32 patient rooms that replace the most antiquated ones and are arranged in a continuous ring for efficient staffing. The institution has reduced the number of its patient rooms from 92 to 82, with most rooms now enlarged to accommodate new equipment.

The basement houses a new cafeteria, a kitchen, supply space, and a more efficient mechanical plant that has reduced the hospital's operating costs, despite a 48 percent expansion of floor space, says Hathaway. An outdoor terrace, which extends from the cafeteria and is made possible by a slope in the site, further deinstitutionalizes the addition and extends it into the landscape.

Because this hospital has a history of adding a new wing every 15 years or so, Perkins & Will envisages future expansion on the north end of their addition's long axis, into which more modules can be hooked, explains Blair. The scheme is essentially a new master plan that will permit Sharon Hospital to move out of its remaining old spaces over a period of time. ■

Insulated clear anodized aluminum panels: *Leed Himmel*
Curtain wall: *Wausau*
Low-E glass: *Viracon*
Acoustical ceilings: *Armstrong*
Office furniture: *Haworth, Meridian*
Reception furniture: *Kusch, Geiger, ICF, Mueller*
Exterior lighting: *Bega*



3 Altoona Hospital Altoona, Pennsylvania

A NEW ENTRANCE AND A MAJOR NEW PUBLIC SPACE ARE KEY COMPONENTS IN HAYES LARGE ARCHITECTS' OUTPATIENT-CARE ADDITION.

by Andrea Oppenheimer Dean

Project: *Altoona Hospital Outpatient Center, Altoona, Pennsylvania*
Architect: *Hayes Large Architects—Robert E. Wedge, AIA, partner-in-charge; Judy Coutts, AIA, project manager; Christopher J. Dietrich, AIA, project architect (exterior); Grace U. Oh, AIA, project architect (interior); James Schmidt, job captain; Charles Moyer, Grant Walk, construction administration; Carolyn E. DuBois, landscape architect; Kathleen Muffie-Witt, interior designer; Kenneth Kagarise, structural engineer*
Engineers: *H.F. Lenz Co. (m/e/p, outpatient center); Gwin Engineers (m/e/p, parking garage); Schnabel Engineers (geotechnical)*
General Contractor: *H.B. Alexander and Sons*

Statistics
Size: *132,400 sq ft*
Key components: *Seven-story outpatient center with four-story concourse and four-story atrium, plus 352-car parking structure*
Design challenge: *Add a major new building and parking structure without blocking views from patient rooms in existing hospital. Negotiate steep grade change from front to back of site. Phase construction so new building doesn't disturb operations during project.*

The atrium is now the stock-in-trade of outpatient hospital additions, and the reasons for its popularity are nowhere more evident than at the Altoona Hospital's new wing. Its atrium, consisting of a glassy four-story concourse edged by a seven-story drum, is an all-purpose device: The concourse is the main point of entry and information, and serves as a waiting space, a circulation spine, and a way-finding device. By admitting daylight and providing views of the central Pennsylvania landscape and the city of Altoona, the atrium brings the exterior world into the 132,400-sq-ft, seven-story outpatient center's public spaces.

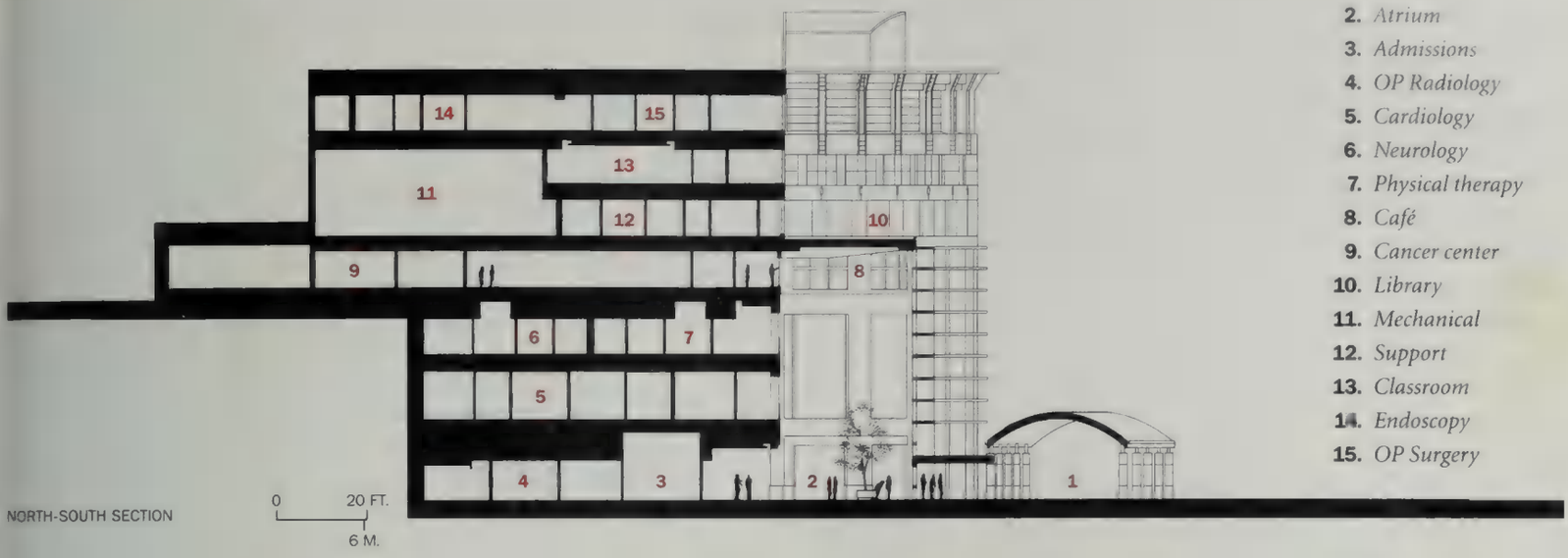
While the atrium serves as a horizontal link between a new parking garage and both the addition and the existing inpatient tower, it also makes a vertical connection between the center's public spaces on the first and fourth floor. From there a cafeteria affords views downward, as do a medical library on the fifth floor, a conference room on the sixth, and a surgeons' lounge on the seventh floor.

Hayes Large Architects took the cues for its exterior design from the adjoining 1970's tower, a precast tower that forms an L with the addition. By pulling the atrium's drum and concourse forward, the designers inserted a bit of punctuation. The drum, especially, endows otherwise ordinary facades with presence and acts as a hinge connecting old and new, the inpatient tower and the outpatient center. The broad canopy adeptly anchors the concourse to the ground, while providing shelter for up to five cars and three lanes of traffic.

Beginning at the entrance canopy, every architectural element is calculated to help make the outpatient visit unthreatening and uncomplicated and to simplify the visitor's route. The single-loaded corridor plan and large floor plate left room to consolidate related services. Just inside the entry is an information desk and reception and admissions staff. Nearby are diagnostic imaging and pre-admissions testing, the only services most first-time outpatients need. Circulation on the lower four floors always loops back to the glassy perimeter corridor, "so it's easy to find your way, " says Christopher Dietrich, AIA, who served as project designer, together with Grace Oh, AIA.

Principal-in-charge Robert Wedge, AIA, believes that the visitor's perception of the outpatient center—its image—is considered very important in today's competitive climate. "The facility needs to look successful to compete for the doctors who bring in the patients," explains Wedge. "And people want to walk through a front door and feel they've got current technology; at the same time, they want a warm reception." To underscore the message, there is a generous use of wood—poplar for ceilings, red oak for trim—carpeting in deep tones, custom light fixtures, patterned terrazzo flooring, and a coordination of signage and graphics.

Before the Altoona Hospital addition was completed in 1995, however, a number of complicating factors, many of them common to expansion projects, had to be overcome. Once Wedge and his team fulfilled the contradictory siting requirements of reducing the distances between buildings without blocking views, they found themselves facing a steep grade change between the front and back of the addition. Because site preparation required penetration of alternating layers of very hard rock and friable slate, the team avoided slippage by excavating and building a 45-ft-high and 280-ft-long retaining wall for the garage and the rear of the building by starting at the top of the hill and working their way down. "We cut about an eight-ft bench and poured an eight-ft vertical piece of wall and then bored back into the side of the hill and tied back with long cables and rock anchors," says Wedge. Then they post-tensioned the anchors and stabilized the wall in preparation for the next eight-ft cut. And so on down the slope. The deeper the excavation, the harder the rock became, so that near the



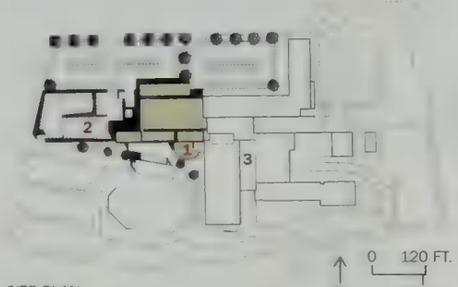
NORTH-SOUTH SECTION

1. *Drop-off*
2. *Atrium*
3. *Admissions*
4. *OP Radiology*
5. *Cardiology*
6. *Neurology*
7. *Physical therapy*
8. *Café*
9. *Cancer center*
10. *Library*
11. *Mechanical*
12. *Support*
13. *Classroom*
14. *Endoscopy*
15. *OP Surgery*





A new concourse and seven-story drum (above and left) are the hinge connecting a new 352-car garage, the outpatient center, and the existing hospital.



SITE PLAN

1. *Outpatient center*
2. *Parking garage*
3. *Existing hospital*

1. *Entry*
2. *Concourse*
3. *Atrium*
4. *Admissions*
5. *Pharmacy*
6. *Gift store*
7. *X ray*
8. *Testing*
9. *Parking*
10. *MRI*
11. *Existing*



FIRST FLOOR



The four-[illegible] conference (above) [illegible] the sixth library (top r[illegible] staff [illegible] on the fifth fl[illegible] seventh. The curtain-walled concourse (opposite) has a café and waiting areas overlooking it.

task's end, workers had to blast the rock, carefully monitoring their progress with vibration meters and expansion-tracking devices.

Then there was the problem of phasing construction to prevent interrupting operations in the existing structure. The staging of electrical services turned out to be "incredibly complicated, involving careful orchestration of 23 different electrical phases," says Wedge. Floor heights posed another conundrum: how to group services efficiently while working with and matching the floor heights in the existing building. For example, the designers carved a two-story mechanical room out of part of the fifth and sixth floors where floor-to-floor heights were too low for some medical equipment. Ideally, they would have placed outpatient surgery suites on the first floor, since these areas need larger floor plates and floors capable of supporting heavy equipment loads. But because inpatient surgical suites were on the seventh floor of the existing tower, they located outpatient surgery on the addition's seventh floor to shorten distances between departments and allow some shared use of staff. To further streamline the process, they moved surgical prep and recovery areas from the fifth to the seventh floor. The need to match the inpatient tower's floor-to-floor heights also



determined the location of the cancer center on the fourth floor, much of which was built on rock and has generous ceiling heights, enabling it to accommodate the equipment used for cancer treatment. Also significant was the fact that the fourth floor had its own entrance at the back of the building, providing privacy for often frail and self-conscious cancer patients. In many hospitals, says Reeves, debilitated cancer patients must wend their way through maze-like basement corridors, where lead-lined rooms for cancer therapy are generally located. "Not here," he says. "From car to treatment areas is about 20 feet." ■

Manufacturers' sources
Precast concrete: *New Enterprise Stone & Lime/Beavertown Cast Stone*
Aluminum composite panels: *Reynolds Metals*
Curtainwall, sunscreens, doors: *Kawneer Co. Inc.*
Glazing: *Viracon*
Standing seam metal roof: *Berridge*

1. *Staff*
2. *OP surgical support*
3. *Parking (below)*
4. *Endoscopy*
5. *Cardiac ICU*
6. *Existing surgical suite*
7. *Existing*



SEVENTH FLOOR



4 Alta Bates Cancer Center Berkeley, California

ROCHLIN BARAN & BALBONA CONVERTS A LOADING DOCK AND TWO LOWER FLOORS OF A HOSPITAL INTO A PLAZA AND LIGHT-FILLED CANCER CENTER.

by Andrea Oppenheimer Dean

Project: *Alta Bates Comprehensive Cancer Center, Berkeley, California*
Architect: *Rochlin Baran & Balbona, Inc.—Joseph A. Balbona, AIA, partner-in-charge; Barbara H. Bouza, AIA, project designer; Art Border, AIA, project director; Kurt Schwarm, AIA, project architect; Gareth Jackson, project manager, Annette Shwe, Carlos Amato, Keong Ng, project team*
Engineers: *Thompson & Labrie (structural); Newcomb Anderson Associates (mechanical); Cohen Associates (electrical)*
Landscape Architect: *Chris Patillo Associates*
General Contractor: *Herrero Brothers*

Statistics
Size: *40,000 sq ft (including 8,500 sq ft of new space).*
Key components: *New plaza and atrium, plus two floors of renovated space.*
Design challenge: *Convert loading dock and two dark floors into a bright, patient-friendly environment. Create a place that is easy to navigate, even for patients who may have undergone disorienting radiation treatments.*

It isn't often that cost-saving devices actually benefit the patient. But the trend among general hospitals and specialty-care centers to create separate outpatient facilities adjacent to inpatient hospitals seems to be a significant exception.

The Alta Bates Comprehensive Cancer Center's outpatient addition, for example, is open 24 hours a day and is equipped to deal with almost every contingency of cancer. It eliminates long waits by having medical records on hand and can more easily tailor treatment to patients' schedules than inpatient hospitals can.

Architects Rochlin Baran & Balbona's design also takes the usual prescription for a friendly, easily understandable facility one step further by designing to allay fear. Its plan separates relatively healthy outpatients from very ill inpatients

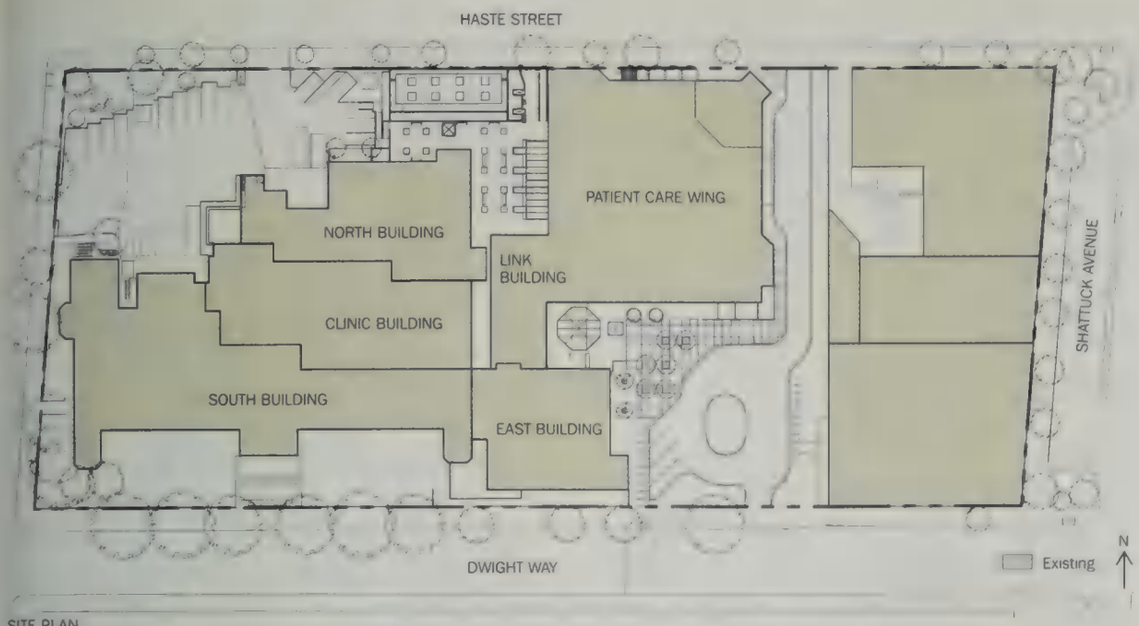




whose condition may trigger fear. It also separates waiting areas for first-time outpatients from those for relative old-timers who may offer unwelcome information.

The architects began with a site that had been a loading and ambulance dock for an adjoining five-story inpatient center, part of Berkeley, California's, Herrick Medical Campus. Most of the 40,000-sq-ft addition is remodeled space that was carved out of the two lower stories of the adjacent building. The first floor formerly housed surgical suites and the basement had radiation therapy. Principal-in-charge Joseph Balbona, AIA, stresses that the design of specialty healthcare facilities, and especially cancer centers, is "equipment driven." Containing the typically large and heavy machinery used in cancer treatment in low-ceilinged old spaces poses problems. Often, as at Alta Bates, it cannot be done.

Because existing ceiling heights were eight ft and the



SITE PLAN

The canted Mexican-limestone piers call attention to the new plaza and support a skylight that ties back to the existing 1970's hospital (this page and opposite).

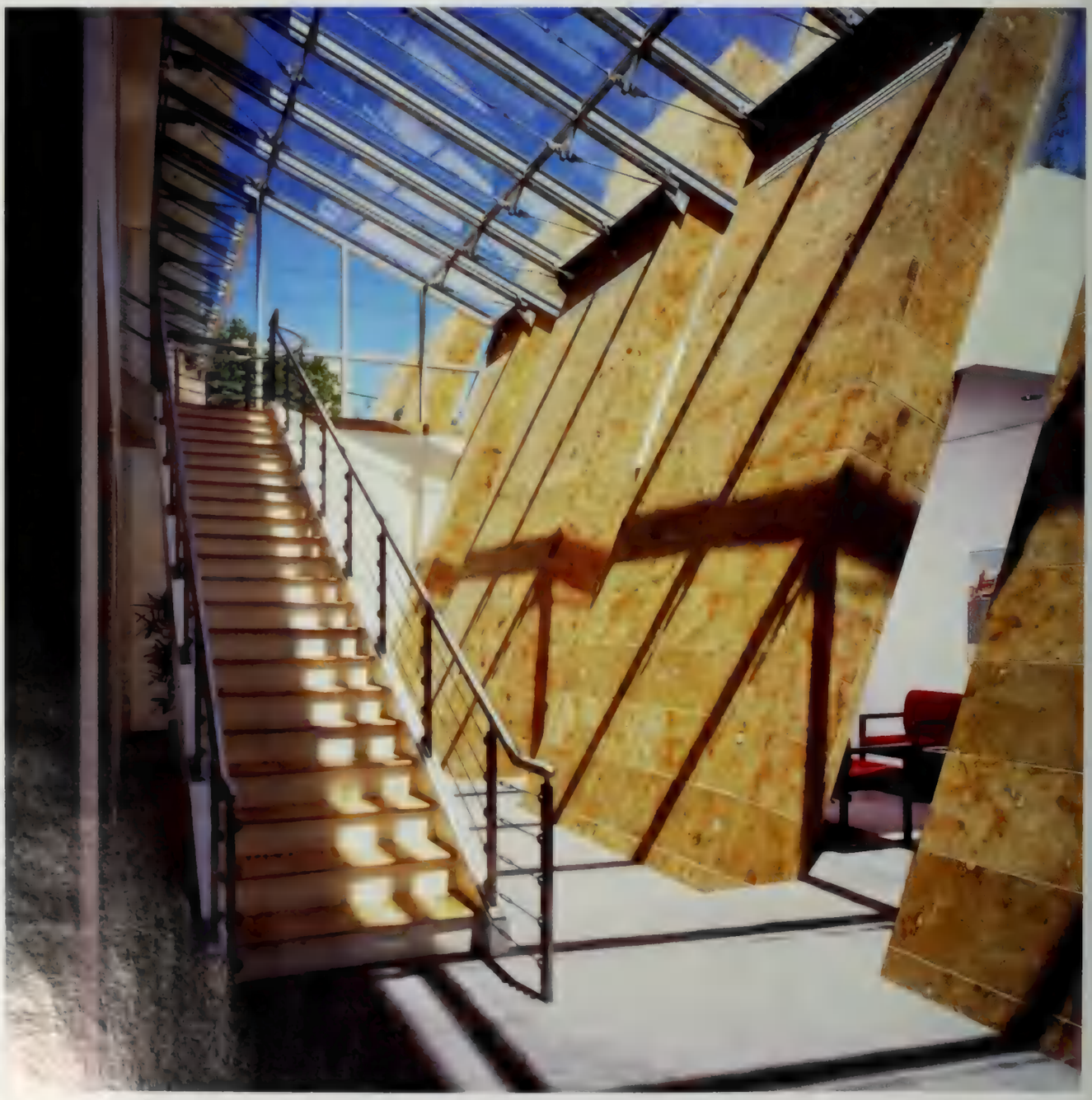


BASEMENT LEVEL



FIRST LEVEL

In addition to their role as visual landmarks, the angled piers (right) also serve a more prosaic function of carrying air ducts. South of the skylit atrium is a new entry (opposite) that connects the cancer center with the existing hospital.

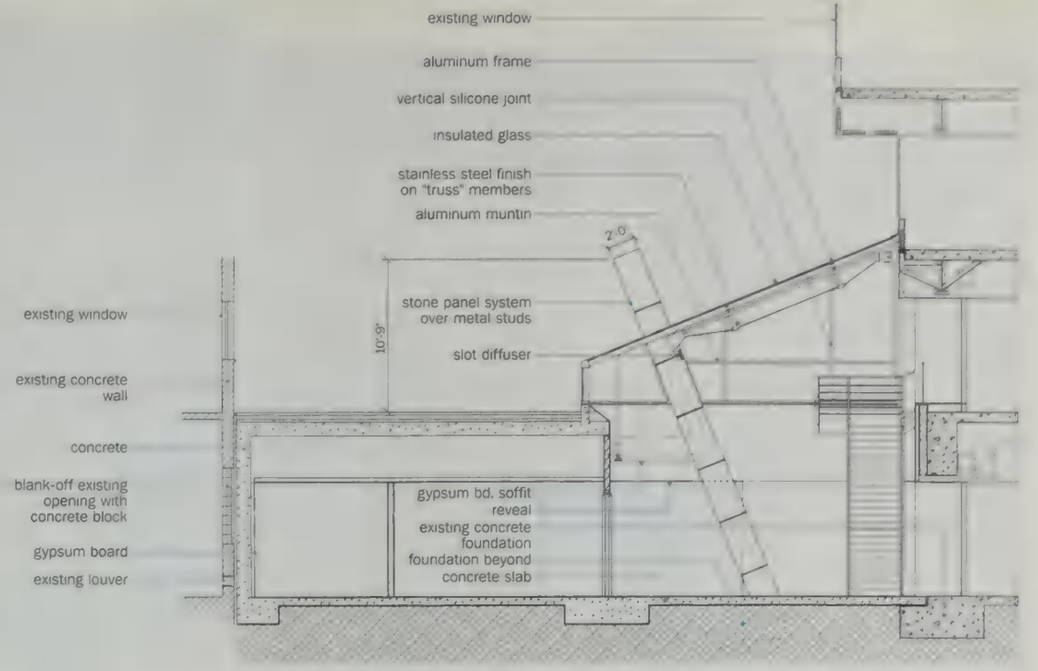


Basement

1. *Atrium*
2. *Systems*
3. *General services*
4. *Imaging*
5. *Surgical oncology*
6. *Support*
7. *Radiation oncology*

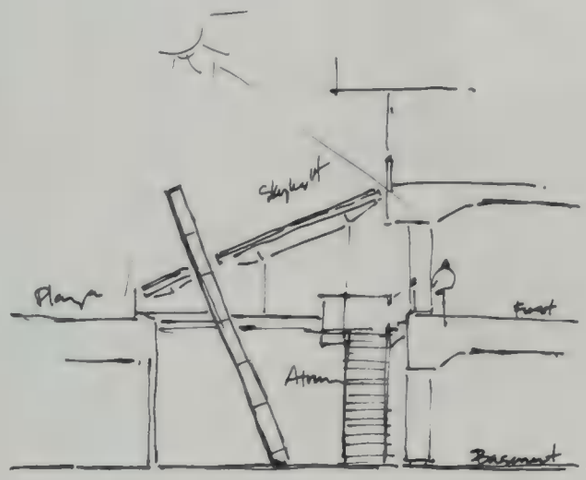
First Level

1. *Entry*
2. *Medical oncology*
3. *Lab/pharmacy*
4. *Chemo/infusion*
5. *General services*
6. *Plaza*



center's planned new radiation therapy area needed to accommodate equipment requiring 17-ft floor-to-floor heights and four-ft-thick walls, the architects provided 8,500 sq ft of new construction to house two vaultlike rooms.

The center's most significant feature, its central skylit public areas, evolved from the team's desire to introduce natural light into basement spaces, explains project designer Barbara Bouza, AIA. The resulting exterior form, as seen from Haste Street on the north, is a low line of canted Mexican limestone piers. They appear to have thrust their way upward, splitting open a newly laid plaza, but put themselves to good use supporting a skylight



that ties back to the existing 1970's precast hospital building. The visible part of the addition is low-key, serving mainly as a bridge between existing buildings



and as a lighted beacon at night. Because the angled piers are designed as part of regular four-ft modules, they lend a sense of order to spaces denied that sense by an existing column grid with no apparent logic, says Bouza. The piers also carry an air distribution system that serves the main interior public spaces.

Mike Fiore, CEO of Salick Health Care, Inc, which operates the Alta Bates center and 10 other comprehensive cancer centers, says, "design was important not just for the patients' sake but for the practitioners'—the physicians and nurses." Most important, he says, was that the design, be "non-institutional, comfortable, with plenty of light and air." Bouza speaks of wanting to connect patients, who tend to become disoriented after some types of treatment, with the outdoors and with natural light "to pull them back to reality." That's one reason for the atrium.

Another is that it eliminates confusion by acting as the central hub from which diagnostic and treatment areas radiate. Balbona stresses the importance of making things as clear and uncomplicated as possible for cancer patients; their lives, he says, have become baffling and trying enough as it is. Hence the stress on simplifying the circulation. Corridors are few, and daylight flooding the atrium is visible as a landmark from most vantage points.

The designers used Uxmal limestone for the piers and as a paving material because of its warmth and because they could take it inside, says Bouza. Flooring in the clinical areas is linoleum, which is seamless, longer-lived, and warmer in appearance than vinyl, says Bouza.

When remodeling an old building you never know exactly what you'll find, especially because as-built drawings are rare. At Alta Bates, the team was surprised to discover ducts and sprinkler systems above plaster ceilings, which required some redesign. Also, as Balbona and his team corrected deficiencies in the addition's mechanical and electrical services, they found themselves having to replace substandard construction discovered in mechanical spaces





Although the center's basement location created a challenge to bring in daylight, it was advantageous for imaging equipment (left), which requires heavy shielding. By borrowing sunlight from the atrium and stairwell (below), the architects made renovated space (far left) more attractive.

the existing building. "You cannot know about these problems until you get into the guts of a building," says Bouza.

Problems aside, Fiore speaks of the Alta Bates addition with pride, emphasizing the psychological importance of its non-institutional appearance; its efficiency of plan, "which allows a high patient volume to go in and out without creating the feeling of a frenetic pace; and its technical sophistication, which allows even the very sick to be treated on an outpatient basis." ■



Manufacturers' Sources

Curtain wall and skylights: *O'Keefe*
Glazing: *PPG*
Entrance doors: *Stanley*
Plastic-laminate-faced doors: *VT Industries*
Locksets: *National Guard Products*
Acoustical ceilings: *Armstrong*
Suspension grid: *USG (Donn System)*
Wall coverings: *United Coated Fabrics*
Plastic laminate:
Linoleum flooring:
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Downlights
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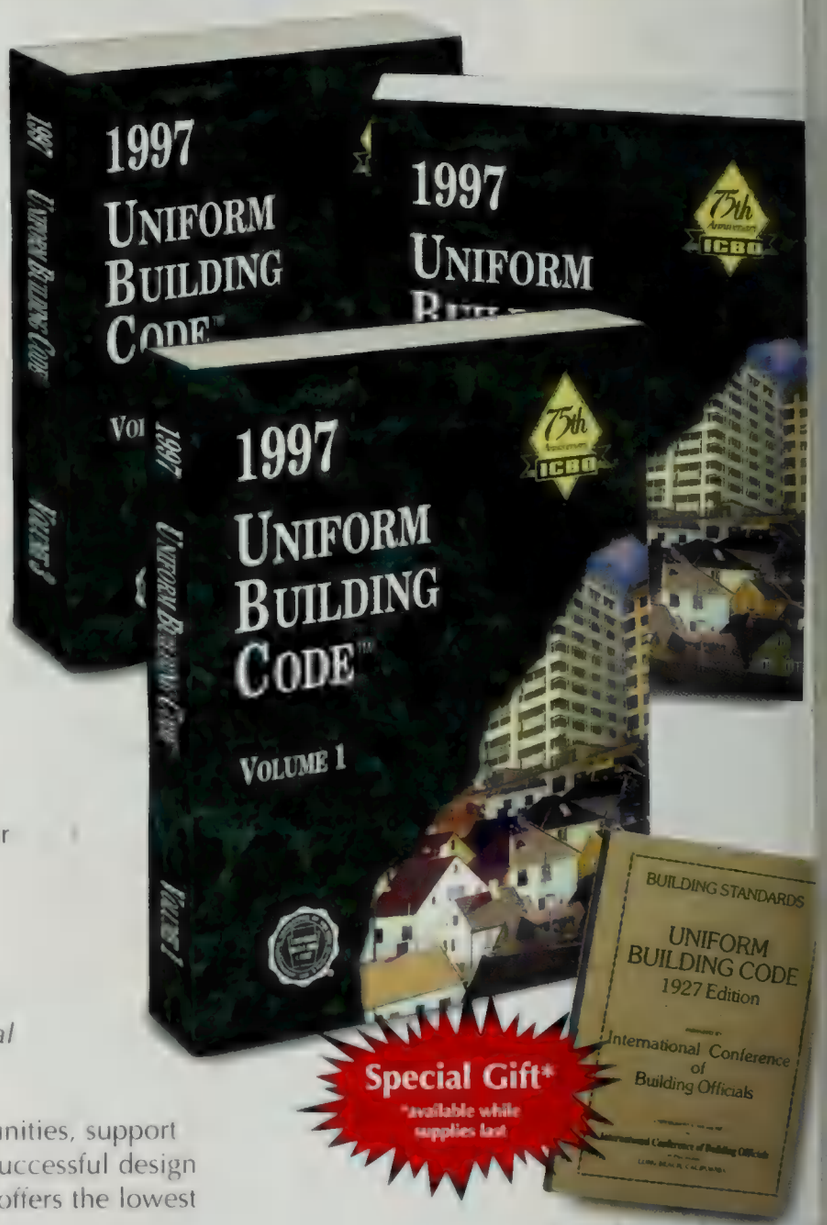
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On first review, buildings are defined by their various components — a sweeping stairway, a marble entranceway, a gleaming glass facade. Long-term use may, however, bring a different perspective to the buildings that we originally praised for high design. The users of a building look to see that the various components work together to produce a high-quality environment in which they can satisfactorily and safely live and work. In the language of architects, we might ask, how do the building and its components contribute to the health, safety, and welfare of the users?

One way to explore the contribution of architectural components to health, safety, and welfare is to examine a specific product or products. With this in mind, the National Wood Window and Door Association (NWWDA) offers this compendium in association with the AIA/ARCHITECTURAL RECORD Continuing Education Series. The intent is to facilitate a deeper understanding of the contribution of wood windows, skylights, and doors to health, safety, and welfare in architecture. This compendium offers a wide range of evidence. Some can be considered "hard evidence" and concerns technical information, say on fire doors or wind load performance. Other evidence is scientific, such as the physical reaction to daylight. Still other more subjective evidence springs from the social sciences, such as the healing benefits of windows. These contributions, in turn, are presented visually in the five projects shown here — a hospital, physical rehabilitation center, learning center, a retirement home, and a renovated historic theater. The projects are offered for their exemplary use of wood windows and doors.

Architects can earn two continuing education credits by reading the section, studying the learning objectives and answering the questions on page 205.

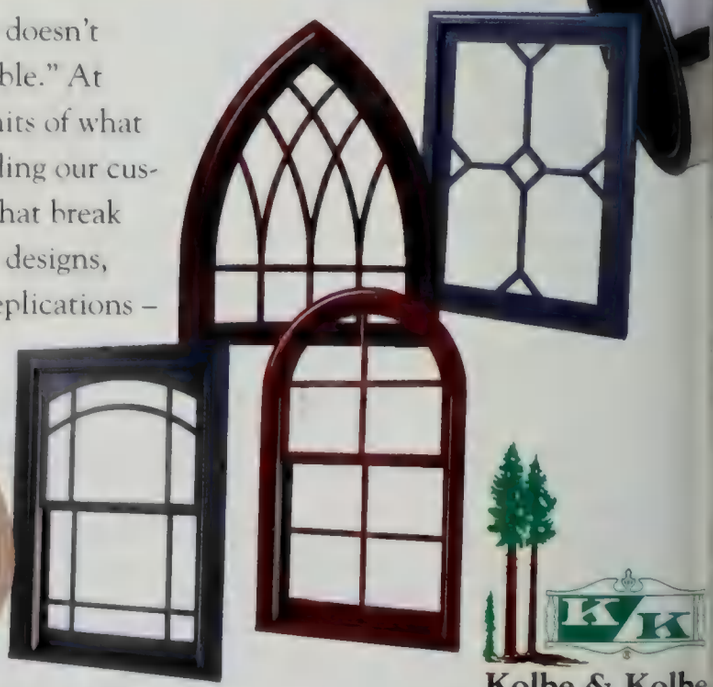
NWWDA is comprised of the country's leading producers of wood sash, frames, window units, skylights, flush doors, stile and rail doors, and sliding and swinging patio door units, as well as producers of the numerous other materials required to manufacture the industry's products. As a professional trade organization, it formulates and promotes high standards of performance for the industry. More information on NWWDA, its standards, testing procedures, and information literature can be obtained from NWWDA, 1400 E. Touhy Ave. Des Plaines, Ill. 60618. (847) 299-5200. Or visit NWWDA's website at http://www.nwwda.org.

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CIRCLE 62 ON INQUIRY CARD

Offering unique contributions to health, safety, and welfare in architecture

AIA/ARCHITECTURAL RECORD
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LEARNING OBJECTIVES

After reading Wood Windows and Doors: Unique Contributions to Health, Safety, and Welfare in Architecture, you will be able to:

- Identify the design ramifications of, and at least four health and welfare factors influenced by, wood windows, skylights, and doors.
- Describe the psychological implications of natural light exposure and views to office workers and recovering patients in hospitals.
- Outline: 1) the general regulations behind door safety, 2) the characteristics of three special-function wood doors, and 3) five window performance tests.

Use the preceding learning objectives to focus your study. After reading the article, complete the questions and check your answers (page 205). AIA members may fill out the self-report form and send it in for two AIA Learning Units to Mark Scher, Director, AIA Continuing Education Programs and Products.

UNIQUE CONTRIBUTIONS

Compiling this information was like piecing together a jigsaw puzzle with many different-sized pieces. To provide some structure to our discussion, we've relied upon a definition of health, safety, and welfare offered by AIA. As you read through this, take time to examine each of the pieces, keeping in mind the whole — the contribution of wood windows, skylights and doors to health, safety, and welfare.

HEALTH

AIA defines health as "aspects of architecture that have salutary effects among users of buildings or sites and address environmental issues."

How does the use of wood windows, skylights, and doors relate to environmental issues? Perhaps the most obvious place to start is with wood as a material. Wood is made up of fibrous cells, each of which traps air and creates natural insulating pockets. It's the same principle used in insulated glass systems. It's the trapped air that provides the energy benefits. Tests show that as an insulator, wood is 400 times more efficient than steel and 1,800 times less conductive than aluminum. At the same time, less energy is used in the production of wood windows, skylights, and doors than steel or aluminum ones.

Wood is a natural, renewable resource. A well-managed forest can produce lumber for many generations. Wood window and door manufacturers have become even more environmentally responsive. New technologies designed to recycle wood waste byproducts are now more widely applied. Through fingerjoining and use of composites, for instance, waste lumber is turned into durable components for stiles, rails, muntins and mullions.

Energy consumption in buildings can also be significantly reduced by careful placement of windows and shading devices. Through its ability to collect and transport heat by nonmechanical means, passive solar design can supply small or large amounts of heat and light.

With the rediscovery of passive solar design has come a new interest in daylighting. Scientists now proclaim that daylight is essential to the health, well being, and productivity of individuals. "Light exposure is important to the inner time keeping of humans," says Greg Franta, Boulder, Colo., architect and energy design specialist.

In scientific terms, the human system has evolved under the influence of the sunlight spectrum. As a result, light-sensitive and light-modulated organs are specifically adapted. For instance, light that enters through the retina of the eye affects the functioning of the pineal gland, which in turn influences the timing of our biological clocks or our sleep/wake cycles. Light affects the body's natural regulation of stress and fatigue. Lack of appropriate amounts of natural light can lead to disease, such as Seasonal Affective Disorder. In addition, sunlight is vital to the absorption of calcium and phosphorus from the diet for the normal mineralization of bone. Full-spectrum light produces significant improvements in physical working capacity by decreasing heart and pulse rate, lowering systolic blood pressure, and increasing oxygen uptake.

SAFETY

AIA defines safety as "aspects of architecture intended to limit or prevent accidental injury or death among users of buildings or sites."

Over the years, the manufacturers of wood doors have responded to consumer demand for fire safety by developing four classifications of fire-resistant doors. In turn, the model building codes have established a fire door rating system (see chart below) for use in protecting door openings in fire resistant-rated wall constructions. As such, all fire doors must meet the requirements of ASTM E-152 and bear certifying labels of an independent testing agency approved by the building official. Installation of fire doors must be in accordance with the National Fire Protection Association's Publications NFPA 80 "Fire Doors and Windows" and NFPA 101 "Life Safety Code."

Fire-resistant doors with 45-, 60-,

FIRE DOOR RATINGS

NWWDA Industry Standard I.S. 1-A, Architectural Wood Flush Doors

Label	Rating	Description	Wall Rating
20-min.	1/3 hr.	For smoke and draft control between rooms or office corridors.	1 hr.
45-minute	3/4 hr.	In corridor and room partitions.	1 hr.
60-minute	1 hr	In one-hour enclosures in vertical exitways.	1 hr.
90-minute	1 1/2 hr.	In two-hour enclosures in vertical exitways	2 hr

OUR WINDOWS ARE MADE FROM WOOD. AND SOMETIMES,



When architect Bill Becker redesigned this summer retreat in the Berkshire Mountains, the home's setting provided all the inspiration he needed. He used native wood and stone extensively. Fashioned the front porch supports from 8" logs. And for the north end of the home, which looks out over a lake to the mountains beyond, he created a wall of glass using windows and doors with custom-designed muntins that echo the shape of the surrounding pines. Who did he contact to supply these unique products? Bill Becker's search began and ended with one phone call. To Marvin Windows & Doors.

From Bill's drawings, the company produced three large fixed windows and eight doors, three of which open onto the deck. Marvin's ability to create these custom products inspired similar design elements in the home's interior, including a rustic stairway made from pine logs and branches. Still, as unique as they are, these aren't the only Marvin windows that figured prominently in the design.

To double the home's square footage without violating local zoning codes or overwhelming the surrounding cottages, Bill skewed the second level off the long axis of the first floor by seven degrees to create the illusion of a dormer. Tall, narrow windows which step down in height help further the illusion. And to optimize their energy efficiency, these



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and 90-minute ratings consist of veneer- or laminate-covered mineral core doors. The core is a noncombustible mineral composition.

Although not widely used, other special function wood doors are available. For acoustical or sound retardant doors, wood veneer covers a core that has a damping compound to prevent the faces from vibrating in unison and must meet special stop, gasketing, and automatic bottom requirements. Lead-lined doors or x-ray doors are manufactured with a continuous lead sheet from edge to edge in the center of the door or between the crossbanding and the core. Electrostatic shield doors have wire mesh either in the center of the core or between the crossbanding and the core. The mesh is grounded with electrical leads through the hinges to the frame.

Wood windows, patio doors, and skylights are rigorously tested for structural performance, resistance to water penetration, air infiltration, forced entry resistance, and the operating force of horizontal and vertical sliding units.

WELFARE

AIA defines welfare as "aspects of architecture that engender positive emotional response among, or enable equal access by users of buildings or sites." Welfare is defined as the state of happiness, comfort, well being, and prosperity.

Perhaps the most readily apparent welfare benefits of incorporating wood windows, skylights and doors can be seen in retirement homes, hospitals, and health-care facilities. These are traditionally institutional settings with cold, hard surfaces. The warmth, tradition, style, and beauty of wood can go a long way in creating a sense of comfort for the occupants. Seniors, for instance, may find a sense of security, remembering their home with its wood windows and doors. In hospitals, the domesticity of wood can bring a sense of comfort to a hospital room and help speed recovery. In a doctor's office, wood can have a calming effect.

While [illegible] have been undertaken to quantify the physical benefits [illegible] social scientists readily acknowledge information on an individual's [illegible] response to windows [illegible] For the Environmen[illegible] Research Association (E[illegible] another in this area, Jud[illegible] the University of Washington, at Seattle, surveyed research previously conducted on the psychological benefits of windows and windows design and found as the four most significant benefits:

- Access to environmental information.
- Access to sensory change.
- A connection to the world outside.
- Restoration and recovery.

Psychological relief is defined as "an easing, as of pain, discomfort, or oppression" or as "anything that lessens tensions or strain, or offers pleasing change, as to the mind or eye."

Studies have found that loss of natural information on the time of day or the activity afforded by a view has lead to poor recovery of patients in windowless intensive care units in hospitals. Others have found that workers in windowless offices often feel enclosed and shut off from the larger world outside, and that this can hinder productivity. Some researchers see windows as offering a psychological "away time critical to mental activity and reflection."

Heerwagen does caution, however, that "successful window designs must provide a balance between visual access and visual exposure that is appropriate for the context and for the personal preferences of occupants." In other words, avoid too much exposure of the occupant within. Design techniques to allow for views as well as privacy may include changes in elevation, set backs, buffers between public and private space and extensive overhangs that produce shadows in the viewing area to reduce visibility into the space from outside.

When considering the welfare contributions of buildings, the affect of daylighting on well-being must be considered. Daylighting is paramount in allowing for natural changing light patterns — light and darkness, brightness and contrast. And, too, it is the best source of color rendering. When we are surrounded by natural light, there's an equal balance of each of the colors of the spectrum in our bodies. Under fluorescent light, this balance is tremendously distorted. A cool-white fluorescence gives off a preponderance of yellow and orange natural light. A warm-white fluorescence is even more distorting; in fact, yellow and orange go right off the chart. It has been demonstrated that color perception influences human emotions and physiology.

To conclude our discussion, we turn full circle back to thinking of wood as a material. No one can argue that wood may be considered the most domestic of all materials. As for wood windows and doors, historically, they are what houses are made of. This sense of domesticity can bring a comfortable ambiance to an otherwise institutional setting. Wood is also a material that offers a variety of aesthetics through the different colors of wood, different cuts of woods, and different finishes. Highlighted by the abundance of daylight that enters through the windows, wood can display luminous tonalities.

WOOD DOORS ENHANCE EGRESS



Skidmore, Owings & Merrill LLP

When the Martin Theatre opened at Ravinia Park in 1904 it was lauded for its safety features, including the double width, wooden entrance doors. The warm character of the Arts and Crafts building was sensitively renovated by Skidmore, Owings & Merrill.

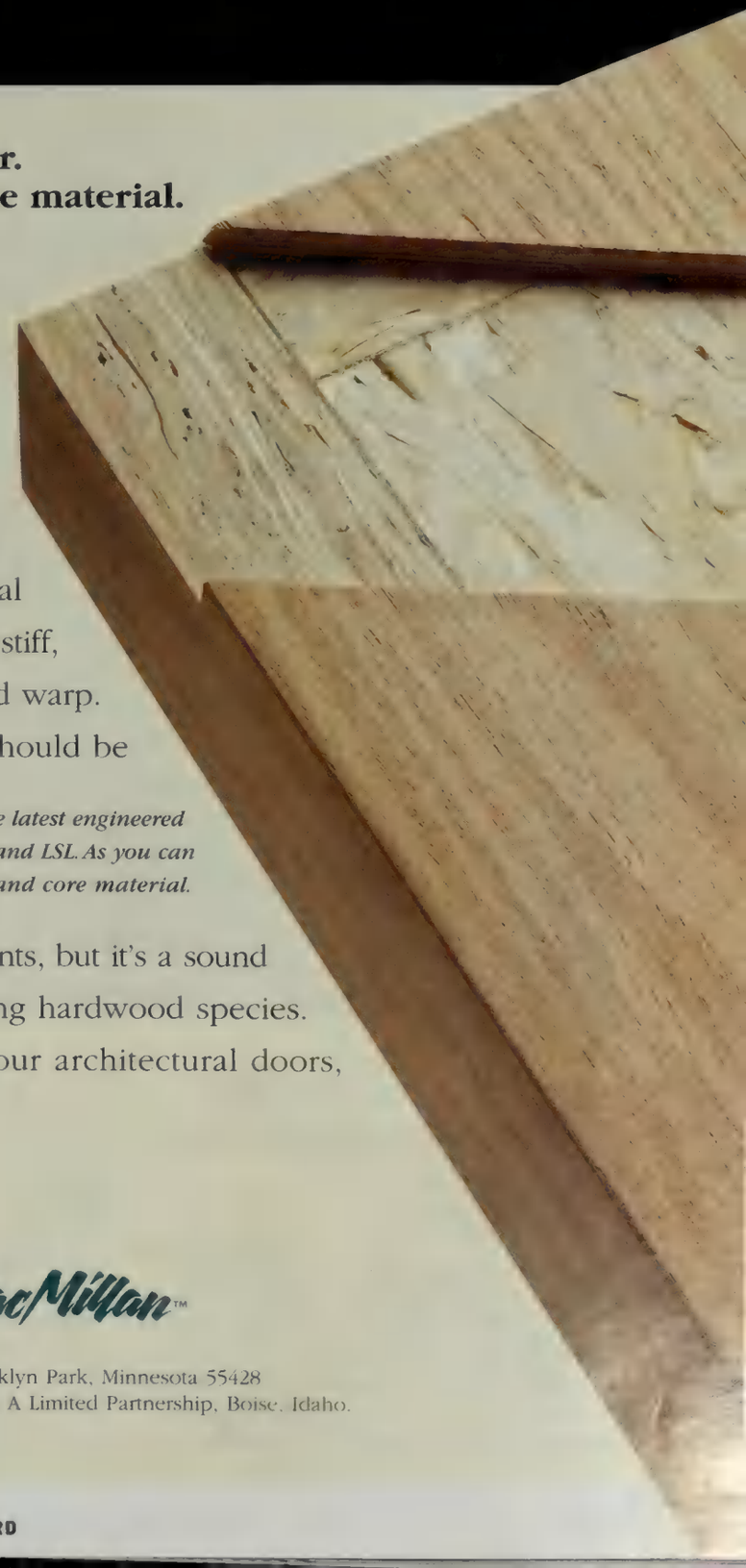
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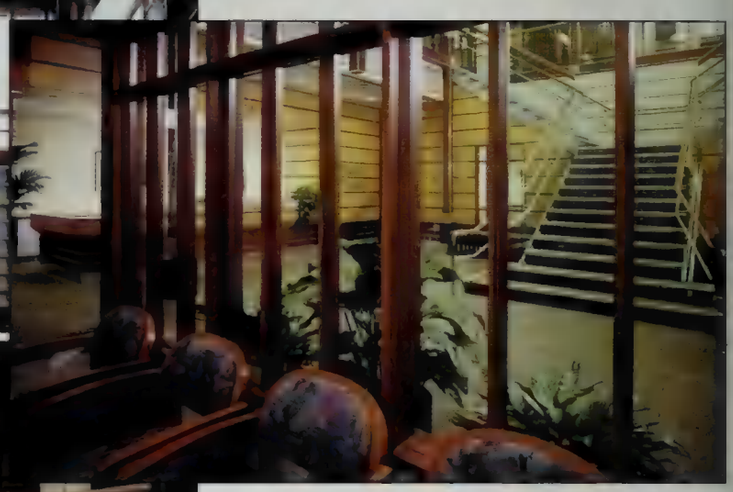
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CIRCLE 64 ON INQUIRY CARD

A PLACE OF HEALING







Photos: SBA/Steffian Bradley Assoc., Inc

Beth Israel Hospital and Children's Hospital Medical Care Center

Lexington, Mass.

This [illegible] was formerly a [illegible] manufacturing [illegible] formation into a [illegible] health-care and surgery [illegible] Bradley Associ[illegible]y turned [illegible] court is a skylit atrium, which, in turn, is surrounded by various medical units, offices, and waiting rooms. The rooms edging the central space actually become part of the atrium through the use of interior windows and windowed doors. The whole system allows for deep penetration of natural light and long views. Add to this the warm palette of oak and cherry wood — doors, windows, railings, and trim — and the building's center is a warm and comfortable place.

Through this design, the architects have uniquely responded to what are generally thought of as four general benefits of windows. Wayfinding is easy, since patients and staff can orient their movement through the building by the atrium's central position. Patients and staff have access to sensory change, as the natural light levels change in the atrium. From any of the offices, views out to the atrium provide a connection to the world outside, yet, within each office or unit is the possibility of individual healing.

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THERAPEUTIC VALUE OF WOOD



Photos: Viitoria Visuals

Sequoia Hospital Acute Care Rehabilitation Unit

Redwood City, California

In the renovation of a skilled nursing hospital into a rehabilitation unit for stroke patients, DES Architects + Engineers of Berkeley, Calif., were guided by the philosophy that the [illegible] of a patient's condition is [illegible] of the [illegible] physical [illegible]. Essential elements in [illegible] were the [illegible] and typically noninstitutional materials to create a healing environment, such as the introduction of wood components. According to the architect, colors, finishes, and materials were selected with an eye to making the patients in the 14-bed center feel at ease.

To introduce an enclosed 2,500-square-foot gymnasium, the architect took an existing outdoor courtyard and cantilevered a skylight over it. To support the skylight, four columns from the underground garage were extended up through the first floor space. At the top, a halo of wood and wood windows was created as a means of unifying the space and marking the most intensive therapeutic areas. While this unique wood halo creates a sense of place by crowning the therapy center, it also allows natural light to enter in and through it, creating a cheerful, warm interior. In fact, natural light was intentionally introduced into the gym to take advantage of its psychological healing aspect. Positioned around the gym are ancillary rooms oriented to provide views of the gym.

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Weyerhaeuser

AN INVITATION TO INQUISITIVE MINDS







Photos: Peter Vanderwarker

Clark Hall, Hartwick College

Oneonta, N.Y.

The choice of wood windows and doors was easy for Clark Hall. In [illegible] Albany, N.Y., firm of [illegible] sought to provide [illegible] of the campus' oldest building, [illegible] American architect John Russell Pope. Einhorn Yaffee Prescott borrowed the red brick facade, copper roof, and wood windows and doors but offered a far more contemporary fenestration massing.

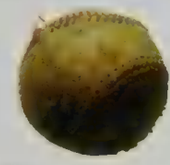
The abundance of windows allows a proliferation of daylight inside, particularly into the full-height atrium. The atrium, in turn, becomes a warm, welcoming entry into this learning resource center. In that space, the walls were painted white, yet the wood window frames were left their natural color, a scheme that highlights the tactile quality of wood. In addition, as the sun moves across the sky, the tonality of the wood changes, offering great variety over the day. That exposed palette is repeated in special learning spaces, such as the classroom seen here. The window design brings an added benefit of offering views out Clark Hall, which sits upon the crest of a hill overlooking the town of Oneonta.

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CIRCLE 67 ON INQUIRY CARD

Wood Windows and Doors Offering unique contributions to health, safety, and welfare in architecture

ENHANCED CONNECTION TO NATURE



Photos: Wayne Soverns Jr.

Meadowbrook of Granby Retirement Home

Granby, Conn.

[illegible] placement of windows [illegible] the healing and [illegible] especially with [illegible] landscape. [illegible] Brewbrook, an [illegible] looks a brook and 12 acres of protected meadow. The design by Richard Heym Associates of Boston confirms that firm's predilection for the incorporation of wood windows and doors to domesticize the contours of communal living. The intent here was to create an individualistic sense of place and home as part of a larger complex.

For Meadowbrook, the two-story building is broken into smaller segments, with pitched roofs, clapboard siding, a covered front porch, and trim details meant to echo the town's rural character. The building supports over 450 windows set in continuous strips, step-down patterns, and inverted bay configurations. In turn, the abundance of windows invites natural light inside and views out to the meadow setting.

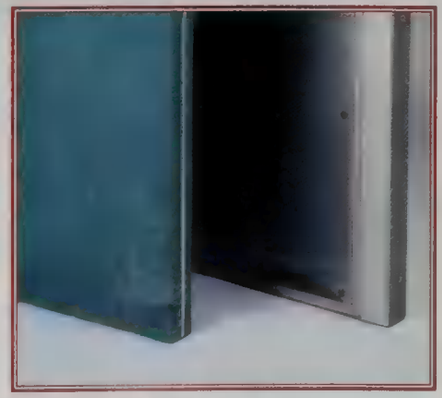
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CIRCLE 69 ON INQUIRY CARD

LEARNING OBJECTIVES

After reading *Wood Windows and Doors: Unique Contributions to Health, Safety, and Welfare in Architecture* (page 189), you will be able to:

- Identify the design ramifications of, and at least four health and welfare factors influenced by, wood windows, skylights, and doors.
- Describe the psychological implications of natural light exposure and views to office workers and recovering patients in hospitals.
- Outline: 1) the general regulations behind door safety, 2) the characteristics of three special-function wood doors, and 3) five window performance tests.

Complete the questions below, then check your answers by turning the page upside down.

Fill out the self-report form (page 282) and submit it to receive two AIA Learning Units to Mark Scher, AIA Director of Continuing Education Programs and Products.

QUESTIONS

1. As an insulator, how does wood compare with steel and aluminum? What are three reasons that wood is considered a "warm" design material?
Answer

2. What are two benefits of daylighting as a design feature and how does it directly affect worker productivity?
Answer

3. Windows and doors are highly regulated points of design. List the requirements fire doors must meet, as well as the testing procedures for windows.
Answer

4. List three types of "high tech" specialty doors and how they work.
Answer

5. Beyond the possibility that windows may stimulate daydreams or fantasies, what is a therapeutic rationale for windows and natural views?
Answer

6. What are four suggestions for balancing external visual access with internal exposure?
Answer

For self-report form, turn to page 282.

ANSWERS

Answers refer to "*Wood Windows and Doors: Unique Contributions to Health, Safety, and Welfare in Architecture* (page 189) and to the questions on this page. After completing the answers, fill out the self-report form (page 282) and submit it to receive two AIA Learning Units.

1. Wood is 400 times more efficient than steel and 1,800 times less conductive than aluminum and requires less energy to produce. From a psychological point of view, wood may inspire feelings of warmth due to its association with domestic architecture, bringing a sense of domesticity to institutional settings. Aesthetically, varied colors, cut, finishes, and luminous tonalities contribute to the perception of wood as a "warm" material.

2. Natural light balances the color spectrum and is the best source for color rendering. Exposure to natural light cues circadian rhythms, affecting worker alertness, stress, emotional well-being, and health — obvious factors in productivity.

3. Door and installation requirements must meet ASTM E-152, bear the certifying label of agency approval by the building official and conform to NFPA Standards 80 and 101. Windows, patio doors, and skylights are tested for structural performance, resistance to water penetration, air infiltration, force entry resistance, and the operating force of horizontal and vertical sliding units.

4. a) Acoustical doors have a wood veneer covering a core-dampening compound that prevents the door faces from vibrating in unison.
b) X-ray doors are lead-lined, which is manufactured with a continuous lead sheet.
c) Electrostatic doors contain a wire mesh that is grounded with electrical leads through the hinges to the frame.

5. Natural and stimulating views may relieve stress and boredom. An explanation for this is that natural views block stressful, and increase positive, thoughts and memories.

6. Possible solutions to overexposure of occupants from outside views include elevation changes, set backs, public/private buffers, and overhangs that control visibility.

CIRCLE 70 ON INQUIRY CARD

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CIRCLE 71 ON INQUIRY CARD

New Tools in Fire Protection

NEW REGULATIONS AND FIRE-RESISTANT MATERIALS MEAN ARCHITECTS MUST KEEP THEIR STRATEGIES CURRENT

by B.J. Novitski

Few phenomena in the built environment draw our attention like a disastrous fire. The inevitable public outcry for greater governmental protection often results in changes to building codes and a redoubling of research efforts. This means architects must be ever vigilant about new regulations and innovative fire-resistant materials. The pace of new development has been kept high by the alarming destructiveness of fires in this decade. And some attitudes are changing about who should take responsibility for fire protection. Keeping up with all these changes remains an ongoing challenge for architects.

Residential fire sprinklers

One longstanding debate involves the desirability of residential fire sprinklers. No one doubts that they save lives. According to the National Fire Protection Association (NFPA), residential sprinklers could reduce the annual rate of 4500 deaths by fire in the United States by an estimated 59 percent, or by 82 percent if used in combination with smoke detectors. Some resistance to sprinklers lies in their expense, estimated to be about 1 percent of the cost of new construction but higher in existing construction. Also, homeowners may fear that a triggered sprinkler could flood the entire house, but residential sprinklers are designed to operate independently, targeting only the area of fire. Even though many jurisdictions require that installers be specially trained and certified, even the best-installed system will fail if its water supply is cut off for any reason.

To promote public awareness, the NFPA formed a coalition in January with the American Fire Sprinkler Association and the National Fire Sprinkler Association. Their goal is to increase the rate of adoptions of fire sprinkler ordinances for new construction in one- and two-family dwellings. A pilot project in Connecticut will be the first step toward a national campaign.

Residential sprinklers are more common in multifamily occupancies. According to Richard Bukowski, a fire research engineer at the National Institute of Standards and Technology (NIST), there are several reasons for this. "The need in a multifamily occupancy is more urgent," he explains, "because one person's fire is a threat to others. And the codes have been successfully accepted because of tradeoffs to the builder that make up for the cost." If a builder can construct three stories without sprinklers but four stories with them, the additional units on the bonus floor compensate for the cost. Moreover, a multifamily structure is more likely to have a professional superintendent to maintain the systems. Bukowski notes: "Many homeowners never get any equipment serviced until it breaks. But with a sprinkler system, they don't know that it's broken until there's a fire because under ordinary circumstances, it doesn't do anything."



Dubbed the "miracle house," this building remained standing after the disastrous Laguna, Calif., fire, while its neighbors burned to the ground. But not a miracle at all, say experts. The homeowners simply took the right precautions to protect their property.

Nevertheless, sprinklers in single-family dwellings have been mandated in special cases, for instance in remote wooded areas, where homeowners must share responsibility for their own protection. These regulations enable the local authorities to justify providing fewer fire stations in sparsely populated areas. Bukowski states that such ordinances are already in effect in woodland communities near Denver and Atlanta. A similar strategy is sometimes applied to urban redevelopment projects, such as on waterfronts.

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Continuing Education *This month's installment of the Architectural Record/AIA Education Series looks at* New Tools in Fire Protection. *Use the following learning objectives to focus your study. After reading the article (pages 207-210), complete the questions (page 280) and check your answers (page 282). AIA members may fill out the self-report form in this issue (page 282) and send it in for two AIA Learning Units.*

Learning Objectives *After reading the article,* New Tools in Fire Protection *and completing the exercises, you will be able to:*

1. *Explain the flaw in traditional fire-door testing and the impact it's having on the major codes.*
2. *Briefly summarize the current state, positive and negative, of at least five fire-protection methods of relevance to specification.*
3. *List six conclusions for designers learned from large-scale fire disasters.*

FIRE-WISE CONSTRUCTION FOR THE WILDLAND/URBAN INTERMIX

A coalition of agencies, including the U.S. Forest Service, the Department of the Interior, the National Association of State Foresters, the National Fire Protection Association, and the U.S. Fire Administration have created a Web site to promote fire safety in the wildland/urban intermix (http://www.firewise.org/). This site offers a host of suggestions for protecting a house from wildfire. Here are a few of them.

Choose a "fire-wise" location. Select a level site over a sloped one; check with local officials about the availability of hydrants and other fire protection; mark your location so firefighters can find you.

Design fire-wise structures. Avoid untreated wood-shake roofs; screen the chimney; cover exterior attic and underfloor vents with wire mesh no larger than 1/2 inch. Exterior walls should be of fire-resistant materials from the ground to the roof line. Eaves should be boxed or have minimal overhang. Use thick, tempered safety glass or dual-pane glazing, and minimize the size and number of windows on the side of the house that would likely be exposed to a fire. Build nonflammable balconies and decks; install smoke detectors; provide ample safety exits.

Stay on guard with fire-wise landscaping and maintenance. Create a 30- to 100-ft firebreak of paving or bare ground around the structure; keep firewood and flammable vegetation and debris well away from the walls; sweep gutters, eaves, and roof regularly. Landscape materials should be fire-resistant, such as desert succulents and other drought-tolerant plants.



Stucco-clad Arizona resort structures are landscaped with naturally fire-resistant desert succulents to minimize the potential fuel supply that spreads wildfires.

"A developer builds houses closer together," he says, "so the fire trucks have to come in more slowly, but the houses are sprinklered so the trucks don't have to get there as fast. These economic issues tend to drive the single-family sprinkler ordinances more than anything else."

New ICBO action

A recent code change will affect the way architects specify fire-rated doors. Last fall, the International Congress of Building Officials (ICBO) voted to adopt a new test procedure for side-hinged doors (UBC 7-2-1997). In the past, doors were tested under negative pressure, but positive pressures are more typical in real fires. Under such pressure, most existing swinging doors will leak super-heated gases and smoke at a rate high enough to ignite the door and to impede firefighters' vision. Both wood and metal doors will have to be retested with the new procedure.

It may be early next year before the new code is adopted by municipalities and states, according to Jim Berg, a Kansas City, Mo.-based consultant with Berg Marketing Associates, who has been following this issue. He says that the other code-writing groups, Building Officials and Code Administrators (BOCA) and Southern Building Code Congress International (SBCCI) may adopt the standards in the future. The International Building Code (IBC), currently being drafted in a cooperative effort of all three code groups, proposes fire-test standard NFPA 252, which allows both positive and negative door testing. In the meantime, door manufacturers are rushing to have their products retested and in some cases redesigned. Berg expects that the cost of research and development, plus the added production cost of the new doors, will add about 10 percent to the cost of a metal door and up to 20 percent for wood.

Fine-water sprays create small, concentrated, and fast-moving droplets, and can replace halon systems for flammable liquid fires.



One existing technology that has proven effective in positive-pressure tests are intumescent seals, such as those created for doors by Zero International in New York [ARCHITECTURAL RECORD, October 1995, page 46]. When exposed to heat or fire, the intumescent gaskets begin to expand gradually, filling the gaps between door and frame, and preventing flames and smoke from passing through. More conventional intumescent materials, like those used in fire stops in firewall penetrations, respond to very high temperatures by expanding suddenly and one time only. Such materials would be ineffective as smoke gaskets in doors which may need to open and close repeatedly during a fire emergency while maintaining their gasketing properties. Berg points out that toxic smoke, which is the primary killer in fires, still receives little attention. "Code officials know it's a problem," he says, "but we haven't had a solution. The good news is that intumescent seals might be able to block toxic smoke as well."

New materials

Over the past few years, there has been ongoing discussion about the relative merits of active fire protections, such as sprinklers, and passive protections in the form of noncombustible materials. Although sprinklers are increasingly being demanded in public buildings by codes, insurance companies, and the public, NIST engineer Bukowski points out that they may not be sufficient by themselves in many spaces, such as large atria. Also, they may be necessary but not sufficient for facilities like daycare centers and hospitals with particularly vulnerable populations. Thence the importance, Bukowski says, of recent progress in upholstered furnishings designed to burn more slowly. California now limits the energy release rate from furnishings used in high-risk occupancies. In many cases, this improved fire performance requires only the addition of a bar-

rier fabric placed under the upholstery to keep the filler material from burning. These fabrics are made of highly heat-resistant polymers such as the Nomex nylon used in firefighters' clothing.

Initially, the furnishings industry worried that compliance would make any upholstered furniture prohibitively expensive. "The big breakthrough came," says Bukowski, "when they discovered they could bond the barrier fabric directly to upholstery. The composite fabric is thicker and a little more expensive, but the labor cost doesn't change so the incremental cost is relatively small." So far only a few states require these furnishings. But because they are commonly available and not much higher in cost, Bukowski observes, they are being specified even where not legally required.

Halon substitutes

Another substance that has undergone close scrutiny in recent years is Halon 1301. It has been used in applications where water sprinklers are inappropriate or ineffective, such as in electrical or grease fires, or where the water itself would be destructive. But halons are being phased out because of their damage to the ozone layer. Existing systems are permitted to remain and are even being recycled, but the search is on for substitutes.

Factory Mutual Engineering, a Norwood, Mass.-based property-loss-prevention research and approval organization, has done extensive testing of fine-water spray systems. Unlike conventional water sprinklers, the fine-water spray systems create small, concentrated, and fast-moving droplets. The small droplet size and low water-flow requirements minimize water damage. These are effective against flammable-liquid fires. Senior engineer Richard Ferron predicts that Factory Mutual-approved products for office buildings and light-hazard occupancies (where the quantity or combustibility of contents is low) will be available by the end of the year. Meanwhile, F.M. is still looking for halon replacements that will be effective against electrical fires.

Recent research

Possibly one of the greatest concentrations of fire protection research occurs at NIST's Building and Fire Research Laboratory in Gaithersburg, Md. (For project descriptions, look for their World Wide Web site at http://www.bfrl.nist.gov.) Much of their work is in software development, and about a dozen programs are available at low or no cost. These systems simulate the movement and temperature of smoke during a fire, the breakage of glass under high heat, the evacuation of occupants during a fire, and so on. (See http://www.bfrl.nist.gov/864/fmabbs.html.) Although designed primarily for researchers and fire-protection consultants, these systems are becoming increasingly "designer friendly." For example, a fire model called CFAST is being modified to accept CAD files as input. The resulting system will be able to "read" a building geometry and display the behavior of a fire in it. NIST researchers are working with computer scientists at the University of California at Berkeley (UCB) to animate the smoke simulation model. Users will be able to "walk" through a building on fire and "watch" the smoke flow along the ceilings.

Another NIST research project concerns the safety of elevators during fires. Although elevators are almost never permitted for emergency egress, they are commonly used by firefighters. NIST researcher John Klote has been looking for ways to make them safer. Any elevator equipment near the fire must be considered too dangerous to use. But often the firefighters' water, not the fire itself, causes electrical shorts in components inside the elevator shaft. Klote is studying the way water flows into elevator hoistways from sprinklers, standing water, and fire hoses. Based on his findings, elevator manufacturers will be able to design door housings and elevator cars to channel water away from vulnerable components. However, even then it is unlikely that elevators will be approved for egress during a fire. Currently, codes permit elevators only for the very specific case of air-traffic control towers.

Reactions to recent fires

In reaction to disastrous urban fires, public opinion often calls for stronger preventive measures. As important as that may be, one new lesson emerging in the 1990's is that some fires are not preventable. Indeed, wildfires at regular intervals are a normal part of many North American ecosystems. Especially where human settlement abuts wilderness, called the "urban/wildland intermix," fire is inevitable, and people who choose to live there must learn to cope with it. The good news is that known preventive measures, if followed, can help dwellings to survive these fires relatively intact.

Some of these measures were publicized in the aftermath of the terrible fire in Oakland, Calif., in 1991 [ARCHITECTURAL RECORD, December 1993, page 16]. To make a house less vulnerable to fire, homeowners are urged to clear vegetation away from the structure; architects are advised to design enclosed eaves and specify double-glazed windows, and noncombustible roofs and cladding. How and why these design features fend off fire has become better understood in the intervening years. The behavior of glass under intense heat, for example, has been studied by Patrick Pagni, a fire physicist at UCB. He recalls two adjacent houses in Oakland; the one with double-glazing remained intact while the one next door with single-pane windows burned to the ground.

Pagni believes that fire's main entry point into a house in an urban/wildland intermix, assuming the roof is noncombustible, is through the windows. He explains: "The radiation and convection from a burning shrub near a window cause the glass to break, allowing flames into the structure. Because most vegetation burns intensely but quickly, the window doesn' t have to stay intact for very long. And if it is double-



Public-domain software developed at NIST includes CFAST and Hazard I, which can simulate generation and movement of smoke and gases through a user-defined building, resulting temperatures, evacuation behavior, and so on.



Researchers at NIST and the University of California at Berkeley are developing a fire simulation software system that creates a virtual walkthrough of a building during a fire, and displays a smoke-distribution model on screen.

paned, the window may outlast the fire." He suggests that homeowners in all fire-prone areas, even in mild climates, should consider double glazing.

What Pagni has learned about the danger from combustible roofs is less intuitive. In the past, he says, the main concern about wood roofs was the vulnerability of the individual structure. However, his research shows that a greater danger from shake or shingle roofs is their effect on nearby structures. In a fire like the one in Oakland, characterized by dry, high-speed winds, the burning shingles come loose from their fastenings and become airborne burning brands; their aerodynamic shape turns them into efficient fire carriers. "Research shows," says Pagni, "that for every house with a shake or shingle roof that caught fire in Oakland, there were 60 ignitions downwind." Treated wood is not much better; it takes a little longer to catch fire but still becomes a dangerous brand. "After analyzing the Oakland fire," Pagni concludes, "we believe that we need to take a more global view when choosing materials. Ask not only what the effect on the initial house will be, but also ask if that house catches on fire, what the impact on downwind neighbors will be."

NO LOCATION IS IMMUNE TO FIRE. THE SAFEGUARDS ARE WELL PUBLICIZED, THE MATERIALS ARE AVAILABLE, THE RESEARCH IS ONGOING, AND THE CONSEQUENCES OF IGNORANCE ARE DISASTROUS.

Regardless of any changes to building codes, fire protection ultimately depends on people's willingness to follow the rules and guidelines. According to Don Moeller, of the Walnut Creek, Calif. office of the fire protection consulting firm Rolf Jensen Associates, many of the needed safety regulations were in place before the Oakland fires. But only now are they being strictly followed. "Throughout history," Moeller observes, "such areas have a large fire every few decades. In the intervening period, people's memories fade and they start feeling relaxed about the requirements until they have another fire. In Oakland, many people did not take the rules seriously about keeping brush away from their houses. The outcome would have been significantly different if more people had worked with the guidelines they already had."

Whose job is protection?

The need for protecting the wildland/urban intermix is growing more urgent. More homeowners are seeking refuge from urban centers in less developed areas. Decades of fire suppression in wildlands have led to a buildup of underbrush ("fuel") that would have burned regularly and with minimal damage under natural conditions. Local fire departments are often unable to expand services because of taxpayer revolts, and a conservative political climate prevents major increases in regulation regarding the maintenance of private property. All these factors make the threat of future fires perhaps more severe than it has ever been.

One successful approach to protection has been the introduction of "fuel modification zones." James Smalley, a senior fire service specialist with the NFPA, describes these as areas surrounding housing developments that are planted with vegetation of varying degrees of fire-resistance and in a pattern that does not sacrifice appearance for safety.

"Imagine, for example," he says, "a development in a hilly region of Orange County. At the bottom of a ravine where it's unbuildable, you'll find dense manzanita and other wild brush. As the ground rises closer to the housing near the hill, they'll thin out the natural vegetation and plant fire-resistant [illegible]. In some cases, they'll also require a road downhill from the [illegible] a 40 to 50-foot firebreak. As fire rolls up the canyon, the [illegible], then the fire hits an asphalt road instead of an overhanging deck of a wooden house." These fuel modification zones, Smalley argues, are environmentally sound and may still provide occupants a view of the wildland below. Yet the houses are relatively safe. The severest damage in the 1993 Orange County fire occurred in Laguna, an incorporated area that did not participate in the county's fuel modification zone program.

Now the federal government has added its voice to the call for a more balanced approach to fire protection. No one disputes that life safety is always of primary importance. However, a new policy proposed last year by the Departments of Agriculture and Interior says that the safety of private property is not necessarily more important than the safety of natural resources. If a fire crew must choose between saving a forest and saving a house, it may choose to save the forest. In a speech to the Wildland/Urban Interface Conference last year, forestry expert Neil Sampson predicted that difficult choices would have to be made as funding for fire protection dwindles and individuals continue to build unsafely in fire-prone areas. "This is a harsh message," said Sampson, who chaired the National Commission on Wildfire Disasters, which advised that natural fires should not necessarily be suppressed. "Private land use rights need to be protected, but people who build next to wildlands need to expect wildland fire and take personal responsibility for the way their buildings are constructed, and the way the vegetation is maintained around them." The full text of Sampson's presentation is available at http://www.-firewise.org/pubs/wnn/vol10/no2/.

This is an important lesson for any architect designing outside urban areas. But no location is immune to fire. The safeguards are well publicized, the materials are available, the research is ongoing, and the consequences of ignorance are disastrous. In special cases, it might be helpful to hire a fire-protection consultant. For example, consultants can engineer custom protection systems for invaluable archives or unusually expensive equipment. Or they can do technical analyses and negotiate with local fire officials to justify unusual design features such as exposed structural members. But even without such special requirements, it may not be suitable for architects to simply "go by the book." Professionals might well consider preventive measures for their designs that go farther toward safety than the minimum code requirements. ■

Fire Information Sources

- *National Fire Protection Association*
  1 Batterymarch Park
  PO Box 9101
  Quincy, Mass. 02269-9101
  800/344-3555, 617/770-3000
  http://www.wpi.edu/Academics/Depts/Fire/Nfpa/nfpa_home.html
- *U.S. Fire Administration*
  16825 South Seton Avenue
  Emmitsburg, Md. 21727
  301/447-1000
  http://www.usfa.fema.gov/
- *Building and Fire Research Laboratory*
  National Institute of Standards and Technology
  Gaithersburg, Md. 20899
  301/975-5900
  http://www.bfrl.nist.gov/
- *National Fire Sprinkler Association*
  P. O. Box 1000
  Patterson, N.Y. 12563
  914/878-4200
  http://www.nfsa.org/
- *American Fire Sprinkler Association*
  12959 Jupiter Road, Suite 142
  Dallas, Texas 75238-3200
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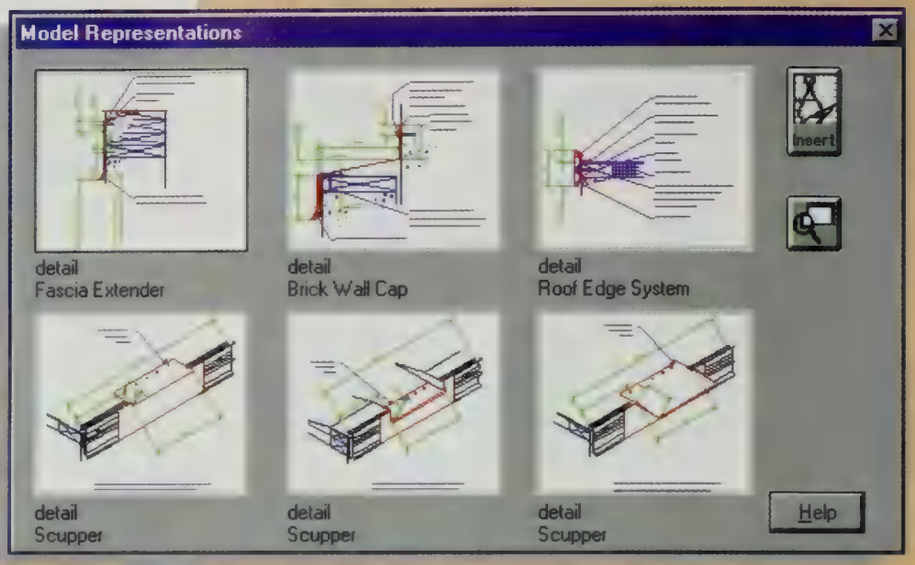
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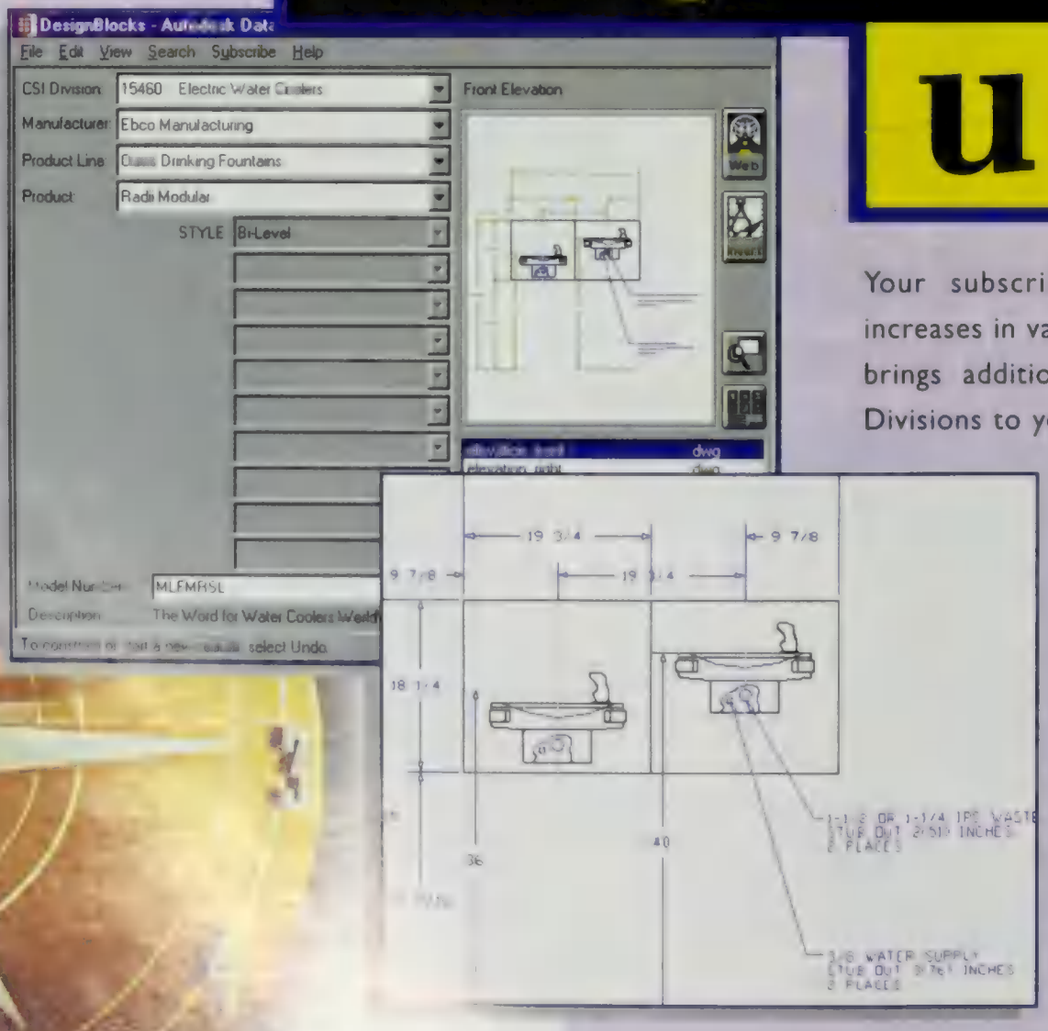


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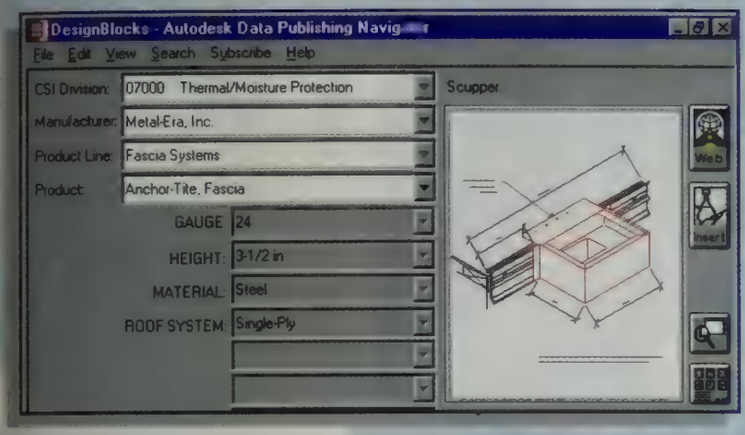
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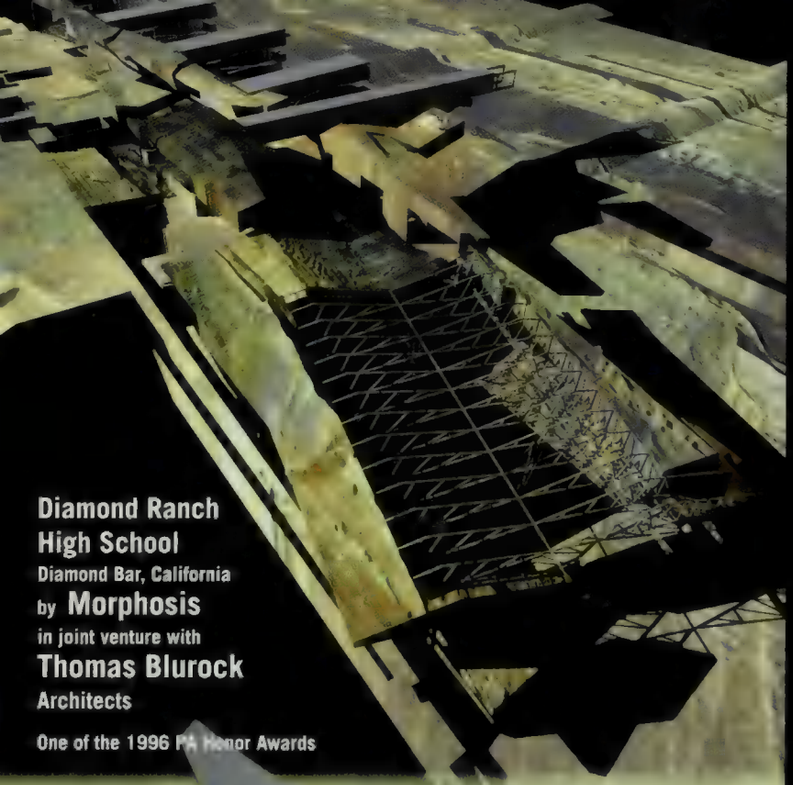
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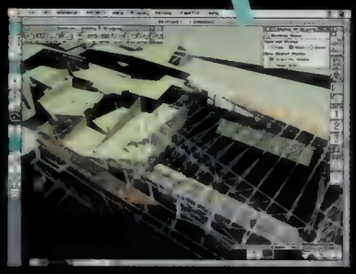
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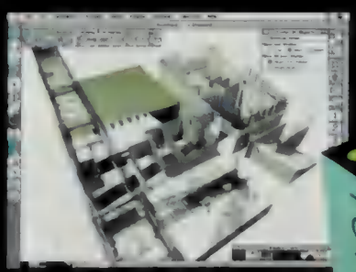


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by Steven S. Ross

The first new AutoCAD version in three years is due out by June. Autodesk technical and public-relations staff members insist that this time, they'll get it right, and right from the beginning, even though about a quarter of the computer code is new. "The end-user did not see any big advantage in AutoCAD 13," admitted one, "but they certainly will in R14." After wringing out the last "alpha" version before beta testing started March 10, we agree.

Indeed, Release 14 will incorporate as built-ins many of the features that you once had to pay extra for. There's better font management, better control of hatched and shaded areas, more ways to snap new entities to existing ones as you draw, and much more flexibility in handling referenced drawings. You can, for instance, trim a referenced drawing to access the data or entities in one part of it and, as an option, have that trim carry down through multiple layers. This should vastly increase the ease of working with multiple referenced files.

On the imaging side, the functionality of AutoVision, an R13 add-on from Autodesk, is now built in, with photo-realistic rendering and basic raster-image importing as well.

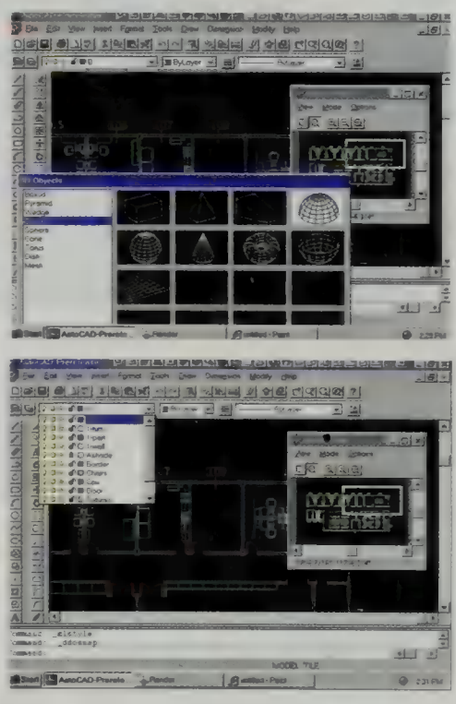
Release 13 ran slowly, especially in Windows. By the fourth major maintenance release, issued in early spring 1996, speed and bug problems had been basically eliminated. But few vendors of add-on software were able to take advantage of the "object"-technology-based hooks Autodesk had built in. By the time problems adding third-party software modules had been solved last year, Autodesk was too close to the next release for many vendors to invest in add-ons specifically for Release 13—or for many customers to bother upgrading from AutoCAD 12. It's not that older add-ons won't work with AutoCAD 14. Older AutoLISP routines will run unchanged. Autodesk says older ADS and ARX add-ons can be recompiled by vendors to work with R14 as well. But vendors of large add-on packages, such as KETIV, Eagle Point, and Autodesk's own Softdesk generally want to take advantage of new features in R14, and avoid providing some things that are now built into AutoCAD itself.

All this works in the same machine you're probably using for older releases of AutoCAD—a Pentium with perhaps 32MB of RAM—without having to boost your machine's performance. In part, this is because code has been refined (there's no need for a big display list in memory, for instance), ARX object files are usually smaller than the blocks of code they replace, and because AutoCAD 14 automatically loads and unloads code as you handle specific tasks.

One big problem for many users: Autodesk seems to be sticking to its statements about making R14 available only on Intel CPUs (or Intel-like CPUs from Cyrix and AMD) running Windows 95 or Windows NT 3.51 or higher. Autodesk says it will continue to sell and support DOS, UNIX, and Windows 3.11 versions of R12 and R13 as long as there is demand. Autodesk, as of early March, was not planning to include R13 and R12 on the same disk as R14. We strongly recommend Windows 95 or Windows NT 4.0 if you do not plan to use a special graphics accelerator board; graphics run slower in NT 3.51 than in NT 4.0. (R14 has a better graphics pipeline.)

On the other hand, files can cycle between R14 and R13 (or LT 95) and back again with no loss of intelligence (although not all parts of an R14 file may be fully usable in LT or R13). R14 can also write to the R12 format. And we confirm that AutoCAD 14 runs generally faster in Windows 95 than R12 runs in DOS on the same machine if you have at least 32MB of RAM installed (DOS wins with 16MB). There's more graphics overhead in R14, but it is a true 32-bit program, whereas DOS has many more 16-bit bottlenecks. But we note that R14 encourages more file baggage—referenced drawings, underlying data, and rendering. And add-ons or individual drawing habits and design style can affect speed as well. But R14 itself isn't embarrassing where speed is concerned.

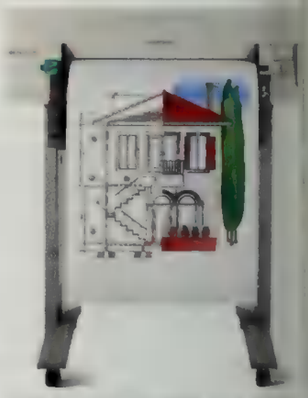
R14 will expand upon the Internet publishing tools that became available for R13. This makes it easier to share designs and product details on the World Wide Web, and to build in-the-office "intranets." R14 does have a Microsoft-standard ActiveX Automation interface, so that data from some Microsoft applications can be shared. But like many software vendors, Autodesk was caught short when Microsoft didn't finish its Visual Basic for Applications language on time. Thus, it is likely that not all VBA programming features will be usable in AutoCAD just yet. R14 is expected to ship by the end of July; pricing was not set at press time. ■



An example of the 3D objects dialog box in AutoCAD 14 pre-release version (top) and the on-screen view including Aerial view window and layer control (bottom). Administering external databases from within AutoCAD itself is easier.



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Stop! Read This Before You Buy!

YOUR NEXT COMPUTER EQUIPMENT UPGRADE MAY BE LESS PAINFUL THAN YOU EXPECT HERE'S SOME BASIC ADVICE FOR THE SMALLER OFFICE.

by Steven S. Ross

The rules have changed. As we survey the computer scene, we realize that new software and new, lower prices for high-speed hardware have altered the price-performance balance for architects. Thus, the advice you got just a year ago—when memory and disk drive prices were far higher—may simply not be valid today. This Q&A, for those who don't have full-time systems administrators, attempts to cover the key issues. Although it concentrates on the Windows/DOS world, it also provides some answers for those using UNIX or Macintosh equipment as well.

Q: My office is using mainly DOS computers. Everyone has been telling us to go to Windows, but DOS versions of the CAD software we use are just plain faster. How long can I stick with DOS?

A: If you're simply producing drawings, with little underlying data, and everyone who needs to can read your drawing files, you don't have to give up DOS—yet. But new versions of Windows CAD software have gotten a lot faster in the past year or so. The Windows packages are much more feature-laden than DOS, too. They can exchange data and graphics with other software and with the Internet, and handle many drawing tasks more easily. These extra capabilities will become increasingly important as clients come to expect more "object" information in drawings—information your DOS software will never be able to handle.

ONCE COMPUTER TECHNOLOGY PRICES FALL, THEY NEVER SEEM TO GO BACK UP.

Q: My machines are mainly equipped with Intel and AMD 486 CPUs. Do I have to upgrade to Pentiums to run the new Windows 95 and NT software?

A: You may want to. A fast 486 (486-DX4-100) works well with Windows 95. But Windows NT really requires a Pentium-class computer. Any computer sold before 1995 will probably not have a "plug and play" BIOS either, so adding equipment to the machine may be more difficult. The upgrade to Pentium may not cost much, either. You may be able to upgrade the basic computer (or even the mother board) for just a few hundred dollars, and reuse existing disk drives, monitor, and other equipment with the faster computer.

Q: What's the difference between Windows 95 and Windows NT? They seem to look alike on the screen, and all the software that people are talking about seems to run on both.

A: Windows NT is more stable, more capable of running an entire network, and easier to administer in a network. It also has more security features, and may eventually replace UNIX for network chores. But Windows 95 is easier to install and runs in smaller computers. The two will probably merge by late 1998.

Q: I'm in the market for some new computers. The dealers and the ads keep talking about ATX and NLX. What are they talking about?

A: These are new layouts for the motherboards that are the heart of all computers. NLX is meant for smaller, home-style or executive machines. ATX is meant for computers with big cases—the type architects usually have. The change of most importance is where the CPU is placed. A fast Pentium uses 30 watts when it is busy, so it has to be cooled by fan. In the ATX design, the power supply's fan does double-duty so the CPU itself doesn't need a fan of its own. This is a much more reliable. Thus, you should demand ATX in new computers you buy or lease.

Q: Why have prices fallen so fast? A 1-GB hard drive was $400 a year ago. Now $250 buys a drive three times as big. And 16MB of RAM was $500 in January 1996. Now it is under $100.

A: Three reasons. First, technology has advanced. Memory chips, for instance, held 1 megabit just a few years ago. Now the most common chip can hold 16 megabits, or 2 mega*bytes*. Only 16 of them are needed for a memory module (SIMM or DIMM) that holds 32MB. Technology for hard drives improved as well. Second, the industry can produce more chips and hard drives than customers need, forcing vendors to compete on price. Third, the dollar is strong against foreign currencies now.

Q: How can I anticipate price changes in the future?

A: It is clear that once prices fall in a computer technology, they never seem to rise again, except when something unusual takes place. Memory prices will probably continue to drop. 64-megabit memory chips are being marketed, 256-megabit chips are due soon, and 4-gigabit chips were recently demonstrated (although they are a few years away). The next big price decrease will probably be in large monitors —21-in. diagonally. A good 15-in. monitor, for instance, can be had for under $400. A 21-in. costs at least three times that. Nevertheless, the average monitor size has been moving up; the 17-inch, suitable for many drafters, can now be bought for under $700.

Q: What about graphics cards, the things that fit into my computer and let me attach the monitor?

A: The newest cards work best with Windows and other advanced operating systems. The latest version of Windows NT, 4.0, has much faster graphics than earlier versions.

Q: My computers use VESA graphics cards that were state-of-the-art just a few years ago. But the new Pentiums from major vendors don't have VESA slots; they accept only PCI cards.

A: The PCI interface works better with the Pentium (actually, these are correctly called VL cards; VESA is the organization that wrote the standards for VL cards). Thus, you won't find many Pentium computers with slots for VESA cards. Also, PCI graphics cards are only 10 to 20 percent as expensive as older VESA cards of the equivalent speed that they would replace.

Q: Video card vendors talk about 64- versus 128-bit data paths, and different kinds of memory, like WRAM and VRAM. Does it really matter?

A: Only if you are doing fast animation within scenes that require lots of photorealistic rendering. Special RAM types for graphics adapters are no faster, internally, than conventional, less expensive RAM. But they may have two ports instead of one. This allows graphics data to be written to them as they write data to the screen. Think of a subdivision with narrow local streets, but two access roads to the main highway instead of one. Traffic will clear out of the subdivision faster—but traffic is still limited somewhat by the local streets.

Q: I've heard about AGP, too, the Accelerated Graphics Port. Also USB and Firewire. What does this do?

A: These are all new ways for peripherals to interact with your computer. AGP will replace PCI and VESA/VL graphics. USB (it stands for Universal Serial Bus) will replace printer and serial ports. And Firewire will handle video streams from VCRs and new digital disks. All three standards (especially USB) are already in use and will be phased in more widely over the coming year. This will mean that peripherals you buy in the future will use the new standards. You will have to buy inexpensive cards to adapt to the new standards.

Q: My dealer persuaded me to upgrade my three-year-old Pentium 66 MHz machines to the newer 200MHz model. The new machines are faster, but not by much. Am I doing something wrong?

A: The only thing you did wrong was to listen to the dealer. The MHz rating refers to the internal speed of the CPU. That's a measure of raw processing power. But the speed of the "bus," the internal pathway that ties all the computer's components together, doesn't vary much between the 200MHz Pentium and the 66MHz Pentium machines. In fact, the 200MHz Pentium's bus speed is 66MHz, no faster than a Pentium running at 66MHz.

PENTIUM CPU versus BUS SPEED

CPU SPEED MHz	BUS SPEED MHz	CPU/BUS RATIO	PERFORMANCE RATIO TO 60MHz
60	60	1	1.00
66	66	1	1.15
75	50	1.5	1.15
90	60	1.5	1.20
100	66	1.5	1.30
120	60	2	1.40
133	66	2	1.50
150*	60	2.5	1.55
166	66	2.5	1.60
[illegible]	[illegible]	3	1.60
[illegible]	[illegible]	3	1.70

* PENTIUM O[illegible]
** PENTIU[illegible]
NOTE: MMX [illegible] ERCENT FASTER THAN "CONVENTIONA[illegible] EED FOR THE TYPES OF WORK ARCHITECTS DO

Notice that a 20[illegible] faster than that old 66 MHz model! [illegible] m 60 to 90 MHz and 100 to 200 MHz. [illegible] sers.

SOUR[illegible]S: WEKA [illegible]

The table shows the estimated relative performance for CAD. If you do a lot of rendering, the performance of high-end Pentiums will be faster for you than the averages in the table. If you do only straight drafting, the performance gains will be even smaller than indicated in the table. Notice that there is almost no difference in performance between the 66- and 90MHz models.

Q: How come the bus speed on some of the faster Pentiums is slower than the bus speed of less-capable Pentiums?

A: The circuitry necessary for synchronizing data flow through the computer requires that the bus speed be an even fraction of the internal CPU speed. So although Pentiums with faster CPUs do the internal calculations faster, the process is slowed by such bottlenecks as bus speed, memory speed, and disk access.

Q: What about cache memory? I heard that adding cache memory can improve performance.

A: It can, because the Pentium can store some data in super-fast cache memory instead of waiting for slower RAM. CAD software moves a lot of data, so cache is more important for CAD applications than, say, word processing. Intel says a 150MHz Pentium with 512K of external cache is as fast as a 200MHz Pentium with 256K. The table assumes all machines have the same cache size. The chips for 512K of cache memory can cost as little as $100. "Internal" cache is the cache inside the CPU. MMX Pentiums have more internal cache, so they are slightly faster in most CAD applications than non-MMX Pentiums.

Q: That's for Intel CPUs. What about other, faster CPU families in the future?

A: You may be stuck with Intel and Intel-compatible CPUs (from IBM/Cyrix and AMD). The big alternatives for architects these days are computers based on the SPARC family or the Alpha family. They are *very* different. The SPARC family, used mainly in Sun MicroSystems workstations, was designed for the UNIX operating system. Sun developed a version of Windows NT for it, but the version was never marketed. Digital developed the Alpha with the idea that it would be a faster alternative to Intel CPUs like the Pentium. Windows NT 4.0 works with the Alpha, but 5.0 probably won't. Digital has developed software that allows the Alpha to run software meant for Intel CPUs, but there is a speed penalty. AutoCAD 14 will not work with the Alpha running plain NT. It may work with the Alpha running the Intel "translator" software. Previous versions of AutoCAD worked with Sun SPARC computers running UNIX. R14 won't. R14 won't work on the version of NT that runs on the PowerPC CPU, either. Benchmarks are in many ways artificial, because they will vary with specific vendors' computers, the software you use, and even the type of work you do. Also, the speed will appear different as you work in the real world. Processes that you do often, like editing a line, happen very fast on any computer. But rendering takes awhile—accentuating the speed difference.

Q: The PowerPC also is the brain inside the Macintosh. I've been using a Macintosh for years. I like it. Will I have to give it up?

A: Think of the Mac the same way you would DOS computers now—good, even great, for drawing. And there are some great advanced CAD packages that work well on it—ArchiCAD, Architrion, MicroStation, and MiniCAD, for instance. But the Macintosh operating system has not advanced as far as Windows has (though Apple has made some moves to try to regain its advantages), and most vendors develop

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for Windows first because Windows has 95 percent of the market.

Q: Well, how else do I improve performance, on a tight budget?

A: Adding memory usually helps most. Forget the advice you read in general-audience computer magazines; they're telling you to go for 16 MB of RAM. Architects' needs are different. You'll want at least 32 MB, and probably 64 MB, especially if you are handling large projects or doing rendering.

ASK FRIENDS FOR THE NAMES OF RELIABLE CONSULTANTS, BUT BEWARE OF THOSE WHO DO MOST OF THE TALKING AND DO NOT LISTEN TO YOUR NEEDS.

Q: Can I add more than 64MB to my two year machine?

A: Maybe not. The chips that control the Pentium motherboard generally could not handle more than 64 MB until about 18 months ago. Various versions of the popular Intel Triton II chipset can handle at least 128 MB, but the older Triton could not. Some Macintosh computers of older vintage could handle more memory, however.

Q: The ads talk about EDO RAM. Is it better than what I have?

A: By one-half percent to a few percent, generally. EDO RAM can move large amounts of data in bursts. This saves some time the system would otherwise use to address separate blocks of memory that might hold all the data that has to be moved. But the movement itself doesn't get any faster. If you have "conventional" DRAM (also called FPM DRAM) in your system, you can add more EDO or DRAM. Brand-new systems use SDRAM, which is even faster, because the memory is more tightly coupled to the speed of the bus. SDRAM memory comes in modules that are not interchangeable with modules in older computers.

Q: A consultant suggested using Novell for my networking software. But the dealer said Windows has networking built-in. Should I pay extra for Novell?

A: It depends. Novell is much faster than Windows NT when you use a network server to run an application. IBM's OS/2 is also faster than Windows for this purpose. But the speed difference narrows when you use the server only to hold data. Architects usually have the server handle data, and run the application (such as CAD software) on "client" computers (the client is the computer you sit in front of).

Q: My office's systems seem to be on the ragged edge; we're running out of network capacity and hard-drive space. Our volume of design work hasn't been increasing as fast as our equipment needs, it seems. Do I invest in a really huge system that might meet my needs for a few years, or do I patch what I've got?

A: There's no single answer. But if you are worried about new CAD software being the "last straw" and forcing an upgrade, don't. AutoCAD 14, for instance, runs at least as fast as AutoCAD 13. And its files are no bigger. In fact, files can be dramatically smaller when drawn with the new ARX-aware add-ons that are also emerging. Files with lots of shading and patterns are also smaller with R14 than R13.

Q: My dealer says I'll need a router to connect computers on my office network to the Internet. What is a router, and how does it differ

more expensive than modems! A single computer in your network to the modem will connect only one Modems are also much slower with five or six computers on it, and need to connect them to a phone line, the modem will be easier, simpler, and cheaper. But as network size increases, routers get more attractive.

Q: To avoid a router, my dealer suggested ISDN to one or two computers. What is it?

A: ISDN allows direct connections between your computer and the phone system. The connections are "modem-like," but much faster—typically four times faster. Phone costs are higher, however, typically $100 to $200 a month plus time spent on-line. Your phone company may refuse to provide ISDN service if you are more than three miles from a central phone switching center. If you spring for a router, you might as well get ISDN, too, unless your phone company quotes a very high price.

Q: The new memory modules do not have parity checking. I thought parity checking was necessary to guard against memory errors.

A: Parity checking was important in the early days of computing, when 64 kilobytes of memory chips, on average, made a "soft" error (an error due to the chip itself) every five or six hours. Today, a 16 MB block of memory (256 times more memory) would be expected to fail "by itself" only once every 25 years! Memory is susceptible to errors from "outside" however—from fluctuating power, or from interference due to other equipment inside the computer case. Most computers that are meant to be used as servers have "error detection and correction" codes built in. They do a better job than parity checking. Many desktop computers also have this feature. Look for it.

Q: How do I keep the power from fluctuating?

A: You can equip your computers with uninterruptible power supplies. A UPS, of course, provides some power for an orderly shutdown if the outside electricity fails. But it also helps suppress surges and dips in power. These can affect memory integrity. A good UPS smoothes them either with electronic "filters" or by drawing on a battery—or both.

Q: Can I use power strips?

A: Don't depend on a cheap no-battery "power strip" to suppress surges over the long term. The active filter element inside them wears out, without warning, typically in a few months to a year. Even a full UPS with battery will protect you from only one 6000-amp surge—typical of a lightning strike. It then has to be replaced. A 700-volt-amp UPS, which will be big enough to power your computer and monitor for about five minutes, costs about $300. The batteries will last three to six years in normal use.

Q: Are there any other costs for UPS use?

A: Sometimes. Some advanced UPS systems can signal your computer to shutdown automatically when power fails. But the signal line usually requires an extra serial (RS-232) port. Serial ports are often used by other peripherals in your office such as plotters. Thus, you may need to buy an extra interface card for $20 to $50.

Q: Where do I find help? I want to design buildings, not computer systems. And don't tell me to read a computer book.

A: Ask your friends—not only other architects, but other small business people nearby—for names of reliable consultants. When you first meet prospective consultants in this field, beware of those that do the talking and don't listen. Often, you need someone to be on call for emergencies and to handle maintenance one evening a week. ■

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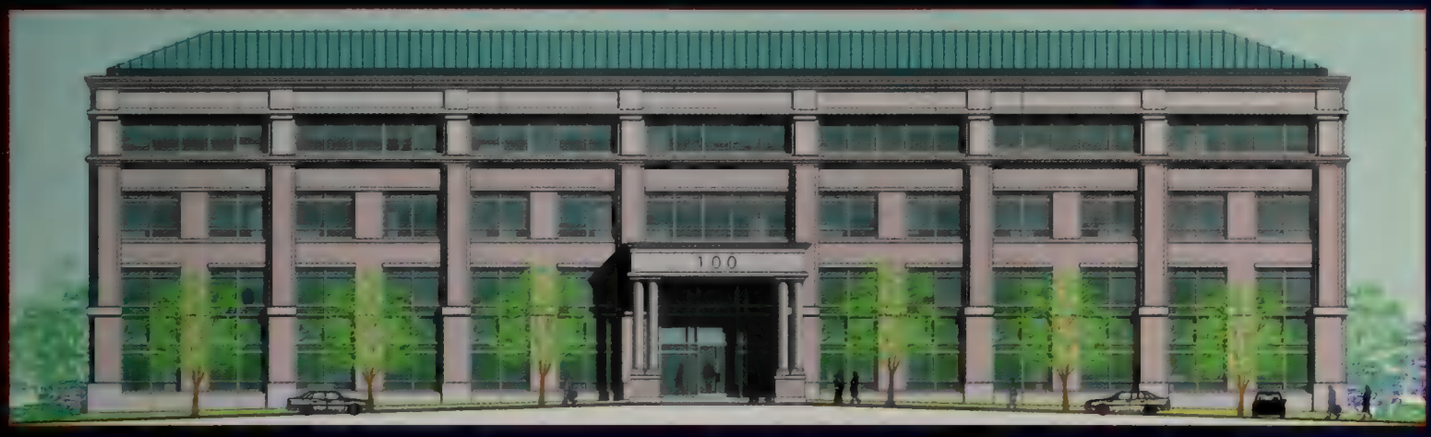
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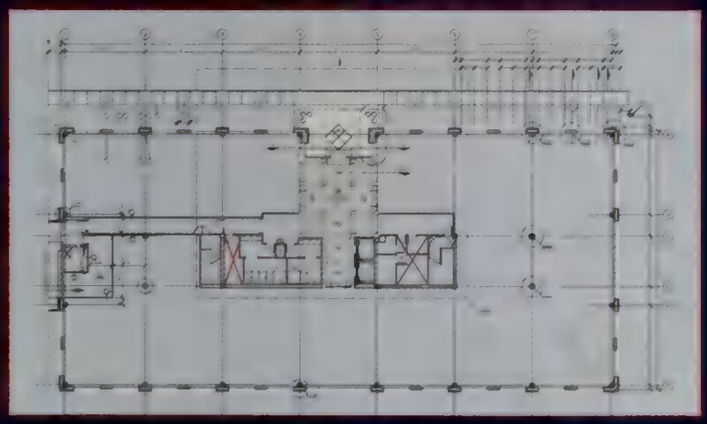
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MiniCad also placed a close third in the Overall Winner category (garnering 21% of the audience vote compared to Arris' 25% and ArchiCad's 24%), beating out AutoArchitect, Microstation Triforma, AllPlan, Architrion, and DataCAD. Even more impressive: MiniCad was the only software program running on both a Macintosh and a Windows machine during the event.

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ARCHITECTS IN THE INFORMATION

Of Virtual Building and Real Architecture



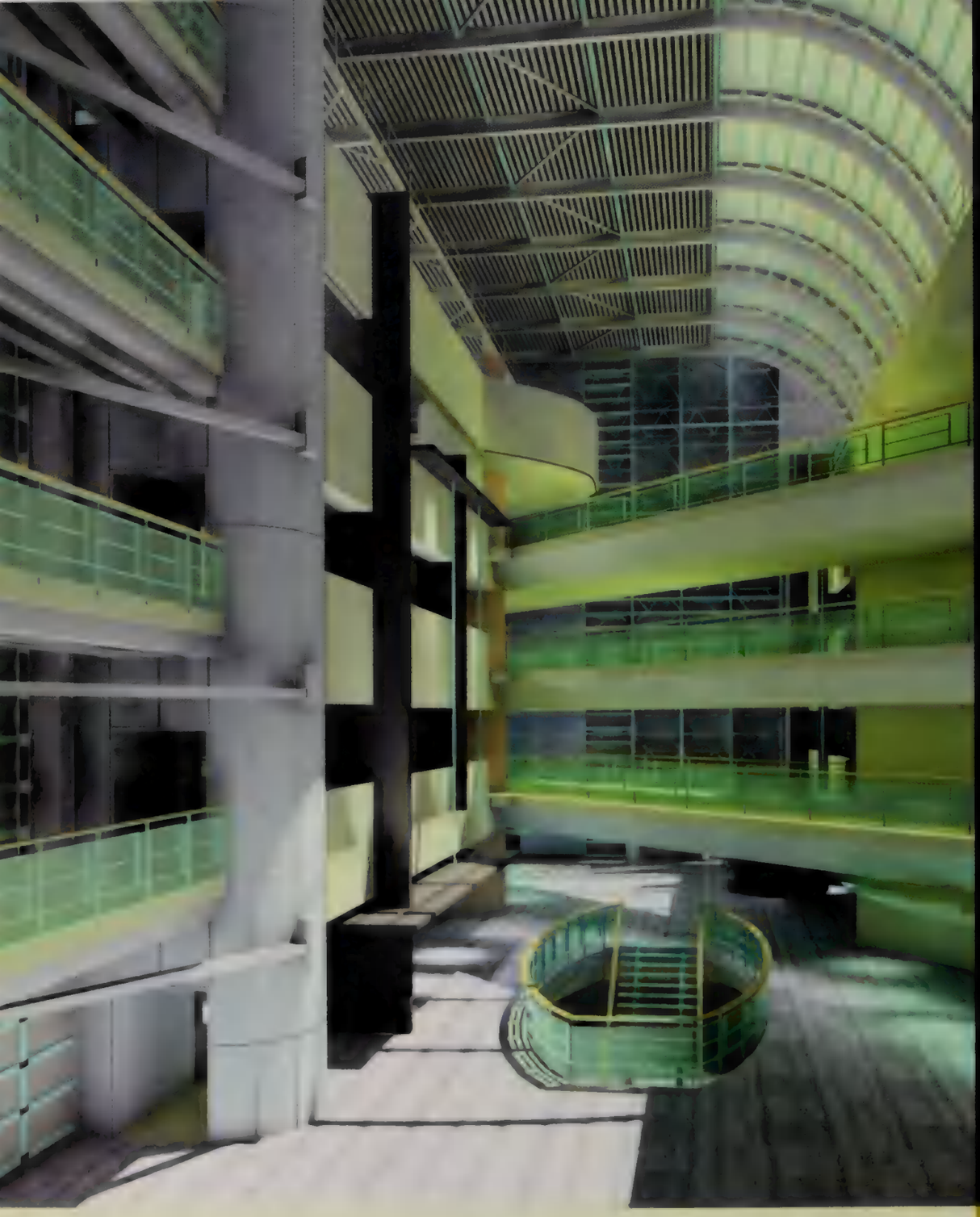
The Objects Among Us

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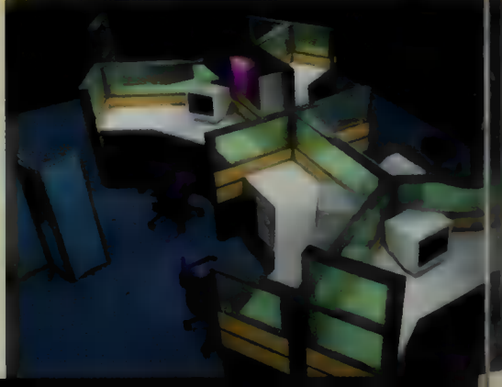
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Principles and Interest

Soon after Graphisoft began its voyage from a software start-up in Eastern Europe to becoming the sixth largest AEC company in the world*, we realized that a resource more precious than financing and market access - neither of which were plentiful behind the Iron Curtain - were principles by which a business could grow and on which its customers could depend.

The development of our flagship product, ArchiCAD®, has been guided during these past 15 years by five principles (as well as a fair share of pragmatism and expediency). Although we didn't always have names for these principles, they grew and evolved with us as we worked with our clients through ArchiCAD versions 1.0 through 5.0. Today, I would identify them as follows:

- **The Virtual Building,** or the idea that the computer should be used to simulate the construction process rather than automate the drafting process,
- **Intelligent Objects** which carry three-dimensional information for rendering and presentation, drafting symbol information for construction documents, and descriptive information, and which behave according to easily definable rules,
- **Simplicity**, i.e. software that is easy to learn and use without sacrificing power and functionality,
- **Dedication** to the profession of architecture and to the building industry as a whole; inside Graphisoft we say that we never select the best business, but the business at which we can be the best,
- **Professionalism**, a simple reflection of the aspirations of our clientele, we identify ourselves as "technology partners" to our clients more than simply software vendors.

Today, many of these principles are industry buzzwords which can be found in many product brochures. At Graphisoft, they entered our vocabulary only after a decade of research & development.

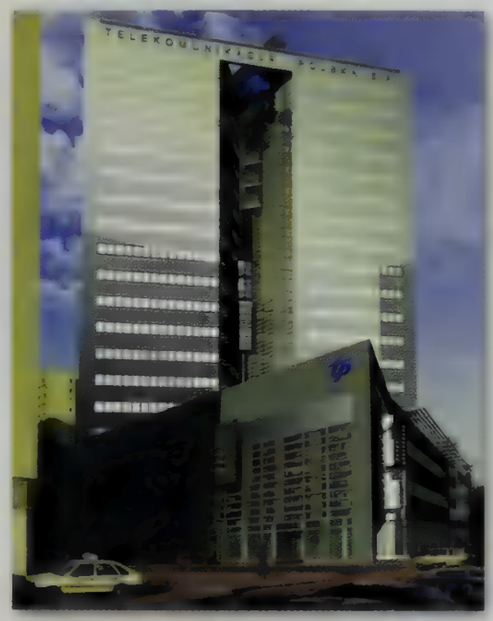
Now, we can add another principle to the development of ArchiCAD (and, if we are successful, another buzzword to the industry):

- **Teamwork,** the idea that our clients should be able to share what they do without hassle or hierarchy, in the same office or across an Internet network, as part of a large firm or as individuals.

Collaboration is a cornerstone of industry in the "Information Age." Our job at Graphisoft is to develop the necessary software tools for architects and other building professionals to succeed and prosper in this competitive environment.

Gabor Bojar
President and CEO, GRAPHISOFT

* Dataquest figures based on reported 1996 revenues of AEC companies



ArchiCAD & Artlantis Render were used for the concept design of the Telekomunikacja Polska S.A. building by ArchiCo-Projekt Ltd.

Contents

- **Of Virtual Buildings and Real Architecture**
- **High-Tech Productivity**
- **ArchiCAD for TeamWork: A New Method for Collaborative Architecture**
- **STUDIOS' New Discovery**
- **The Objects Among Us**
- **Premium Insurance for Young Firm**
- **The Plots Thicken**
- **Exceeding Expectations**
- **Resource Guide**

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Of Virtual Buildings and Real Architecture

by David Marlatt, AIA

Enough has been written in the past 24 months about virtual reality, virtual buildings, and virtual firms, that the subject is beginning to appear quite real. The technological hype with which we are virtually surrounded, however, can easily cloud the architect's vision of deeper issues and problems facing the profession, such as the environmental impact of building, housing for a growing and moving population, firm profitability, and relevance of our profession in society over the long term.

These are daunting challenges for which - despite hype and clichés - computers and software are an incontournable part of any reasonable solution. Most architects accept and embrace this fact, but it is still healthy to evaluate technology against some of the core values of architecture as both a profession and a business.

Mass Customization

In his recent book, Democratic Architecture, Donald MacDonald, FAIA, proposes four principles to be applied to housing: that it be affordable, easily and inexpensively changeable, minimize damage to the environment, and express the multiplicity of society. These principles transcend computer technology, of course, but there are places where the right software can be extremely helpful.

Daiwa House in Tokyo, Japan, for example, will soon create custom software and building components for their 5,000 person sales force. This software will enable them to work directly with clients to design "custom" houses within a wide range of parameters. By using intelligent building objects in their sales and design process, they will allow people to participate in the design of their homes, an option never before available to them.



Market Square Studio, ITEKOR Architecture

Architects, in partnership with owners, are in a prime position to assert their central role not only in the initial design of their buildings, but also in their long term planning, maintenance and operation.

In Americus, GA, Habitat for Humanity International rapidly prototypes and optimizes inexpensive houses for its chapters to use in their local communities (Graphisoft has donated more than 200 copies of ArchiCAD to Habitat for Humanity chapters across America). "The difficulty with the type of houses we build is that they tend to be pretty small," says Peter Dalva, Habitat for Humanity's associate director of construction technology. "You tend to do a lot of revisions and alterations, and if I didn't have ArchiCAD I couldn't make as many revisions. It leads to better design."

Effective communication with constituency groups is also a great challenge in the housing community. Arizona architect

Paul Schwam helps design affordable housing in communities along the Mexico/U.S. border: "...the problem is you need to get a lot of information across to a lot of people who don't all necessarily speak the same language. The best way to do that is graphically, and it's also better for the planners to think about it in 3D. I think time is one of the biggest issues. If we're going to solve the border development problem, we're going to have to solve it quickly."



Prototype of an Affordable Home in Contra Costa County, CA by MacDonald Architects .

More, More, Faster, Faster

And, we might add to the subtitle above, "Cheaper, Cheaper." As are all professionals, architects are under increasing pressure to deliver more and better client services on a shorter schedule while incurring fewer costs. Redundant processes only waste time and increase the risk of errors. Nevertheless, creativity and imagination - intrinsic to successful architecture - defy systemization and efficiency.

The profession's challenge is to provide an efficient environment for invention and discovery. Like a fast-track project, design must continue throughout the documentation process, and working drawings should start with schematic design, each affecting the other in a dynamic and recursive manner.

This is possible using integrated CAD software which stores the complete building model in the computer. Access to detailed information early in the design phase helps improve design and avoid errors later. Conversely, when working drawings become by-products of the integrated building model, fundamental design changes can occur with fewer repercussions very late in the process. In addition to the benefit of improved design quality, integrated CAD software reduces needless administration and the re-drawing of redundant details, specifications and other information.

Virtual You, Virtual Me, We get Together Virtually

Today I drove 20 miles to and from work across San Francisco and burned about one gallon of fossil fuel. I also consumed roadways, abraded my car, and wasted about one hour of my life. So did hundreds of thousands of people in the Bay Area.

This evening on the World Wide Web I visited my stockbroker, my travel agent, shopped for a gift, and did some research, and burned practically no fuel. So did hundreds of thousands of people in the Bay Area.

Despite a large and fast-growing population, however, the World Wide Web remains generally a solitary and uninspiring "place." Is it inevitable that the Web not transcend the flat computer screen , or is it only that principles of firmness, commodity and delight have never been seriously applied to it? Just like a poorly designed building or city, the lack of architectural thought in most Websites impacts my ability to navigate, interact with others, and accomplish my tasks efficiently or at all.

Improving the architectural character of the Web is an important issue for the opportunities it presents architects and the benefits it may engender for users. The Web will never replace most conventional building, but its potential to archive information, process transactions, and facilitate meetings can also help save a significant amount of the world's natural resources.

Creators and Caretakers of the Built Environment

Because architects using integrated 3D CAD software generate so much valuable building information in the course of delivering architectural services, many new fields and services open themselves. Some ideas for ways in which architects can stay involved with clients and projects beyond the issuance of an occupancy permit are:

- Creation of images, animations and virtual reality scenes for building marketing,
- Management of building spaces and assets,
- Post-occupancy studies and simulation of design changes,
- Analysis and visualization of product performance over the building life cycle,
- Content development for electronic "building owner's manuals" including product data and links to manufacturer Websites

Building owners and managers are also seeking ways to use technology to manage their assets, optimize leasing, and improve their bottom line. Architects, in partnership with owners, are in a prime position to assert their central role not only in the initial design of buildings, but also in their long-term programming, maintenance and operation.

Between now and the new millennium - still a long time in the computer world - it is safe to say that almost all practicing architects will use computers and software for design and drafting. Beyond these foundational tasks, however, how will computers be used to advance the profession, better the environment, and provide people with greater access to architecture?

This is not a question for some future virtual world. Intelligent object technology is available now. Designing in an integrated environment is now. Controlling complete, three-dimensional building data is now. All of these technologies can be put to work today to address real problems and exploit great opportunities.

High-Tech Productivity

Dietzel & Partners
Munich, Germany

After taking over Dietz Architects in 1989, Michael Dietzel, owner of the now renamed Architekturbüro Dietzel & Partners in Munich, Germany, saw that the staff was still using pencil and paper tools for all of their planning and design. "Too many operations were being duplicated," explains Dietzel, wh immediately set out to acquire computer equipment and software increase the firm's efficiency. "I found a CAD program back in 199 that had a graphical user interface, was object-oriented, 3D compa ble in every respect, and was nevertheless still affordable. This all sounded like science fiction in those days, but ArchiCAD already ha all of these features at that time."

Object orientation and ArchiCAD's scalability impressed him fron the start. "The fact that ArchiCAD can be used for larger projects h repeatedly held true for us in practice. I know of no other program which delivers such good results for presentations, layouts and pub cations."

Today, the 20-person office has five ArchiCAD workstations in th Munich office and another four in their Dresden office. The firm's client base is composed largely of financial institutions, but expand ing into insurance companies, commercial and housing developers. modem and Apple Remote Access link workstations in the two offices and permit data to be stored centrally and accessed by all employees.

Another key benefit of ArchiCAD, according to Dietzel, is the GDL interface: "Simple GDL commands can be used to construct conceivable 3D elements and store them as parametric objec in a customized library. In addition to knowing the relevant commands, the user merely has to be familiar with sine, cosi and tangent as well as IF/THEN structures. All CAD programs let you construct or use libraries, but these libraries do not le you change the parameters so easily. This is where ArchiCAD wins hands down in terms of productivity."



Rendered view of the renovated Kreissparkasse designed by Dietzel & Partners.

During a recent renovation project, the Stadt-und Kreissparkasse Plauen Bank in the Vogtland region of Germar construction was not allowed to interfere with the bank's da to-day activities, and there was no flexibility in the budget fo unforeseen building problems often encountered during ren vations. Despite the problems, the firm managed to satisfy a meet all of the client's requirements. ArchiCAD's integrated database allowed the architects to start determining correct dimensions and accurate costs at a very early stage. "This is a dis tinct competitive advantage that benefits us time and again," com ments Dietzel.

The Internet is the next great challenge for Michael Dietzel. Together with another business, he has constructed a page on the Internet which allows readers to view plans relating to a particular building project. His future plans are to integrate a QuickTime® VR model onto his web page allowing clients to take a walk through a future building. This will allow Dietzel to make his work accessible t a wider audience while raising the interest of future clients.

STUDIOS' New Discovery

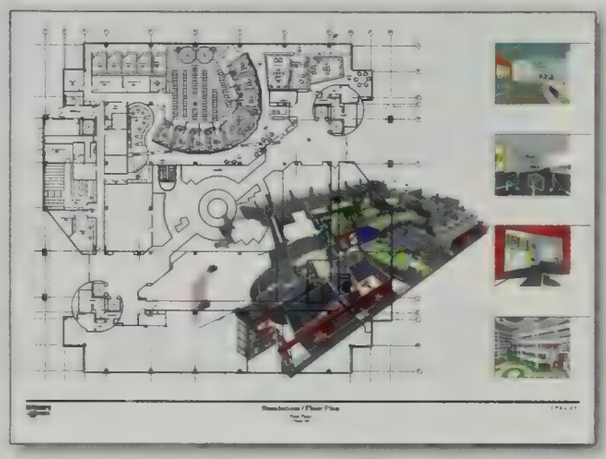
STUDIOS Architecture, Washington D.C.

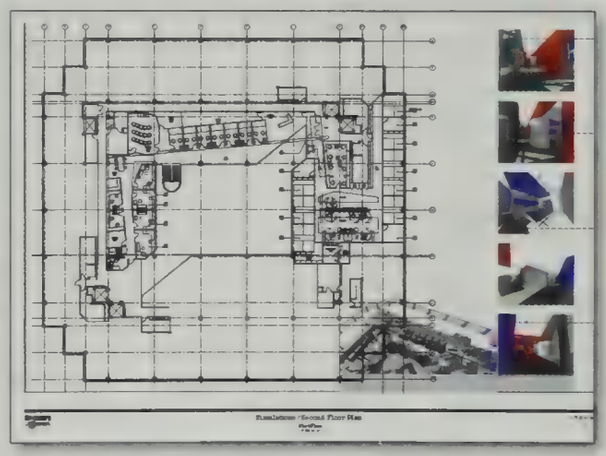
Using ArchiCAD, Project Architect Scott Williams of STUDIOS Architecture in Washington DC, sat in an unfinished space of Discovery Communications Inc.'s proposed Latin American headquarters facility in Miami, Florida, to design an elaborate three-story atrium staircase for a client presentation a few days later. Once the model of the atrium and stair were completed, STUDIOS generated QuickTime® VR scenes of several alternate designs, presented them to the client on a laptop computer and won approval the next day.

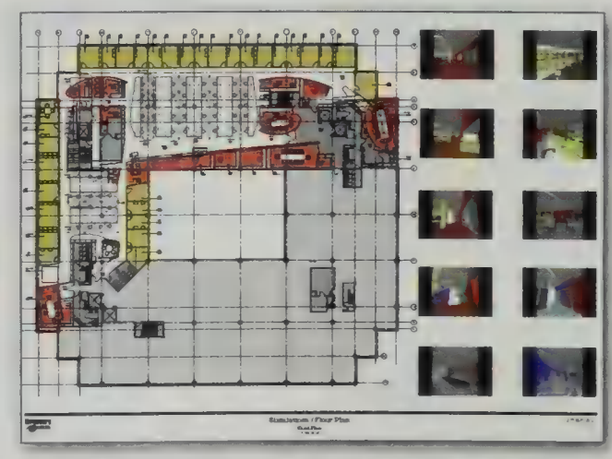
STUDIOS was originally commissioned to design only the 25,000 square foot third floor of the Latin America Television Center. Discovery Communications, Inc., parent company of the Discovery Channel, The Learning Channel and Animal Planet, asked them to re-design two additional floors with the help of viewing the proposed design in 3D with QuickTime VR scenes and animations.

"ArchiCAD was perfect for this type of project because it facilitated quick decisions," said STUDIOS' Principal, Phillip Olson. "The client had already set a launch date to begin new operations at the new center, so the facilities had to be in place on time to house all of the employees. Because the client is technologically oriented, they had a much greater understanding of what it took to make the presentation happen. They were impressed with how quickly the design was generated."

Respecting the client's interest in "green" products, STUDIOS' design centered around the use of recycled materials. STUDIOS found a supply of old growth Heart of Pine recovered from a torn down 1870 cotton mill in Atlanta, Georgia, and used the recycled timber for stairwells and "docking walls" which supply electricity and network communication lines to modular work stations. ArchiCAD's GDL technology accelerated the design process by allowing complex assemblies to be created. Dozens of alternatives could be explored from a single section of the recycled timber modeled in three dimensions and used as an intelligent object.







Presentation boards of the Discovery Channel facility shows both floorplan and QuickTime® VRs.

In addition to creating the timber library in ArchiCAD, a library of custom Haworth furniture was also created to help the client visualize how the furniture would fit in the new space. STUDIOS was able to model each piece of furniture for simultaneous use in working drawings and perspective views by working from dxf files provided by Haworth and information available in product catalogs.

With a tight project timeline, the design team at STUDIOS appreciated ArchiCAD's ability to generate three-dimensional models automatically from the floor plan and section views allowing them to advance the construction documents, make design studies and prepare client presentations at the same time with relatively little additional work.

"Modeling in 3D gives you and your client a chance to look at a design critically and react to it," said Bill Deegan, Project Architect for the project. Deegan also cites that STUDIOS could shave off critical time by sending QuickTime® VR scenes to the client by e-mail and through an intranet which links STUDIOS' U.S. offices in Washington, San Francisco and New York.

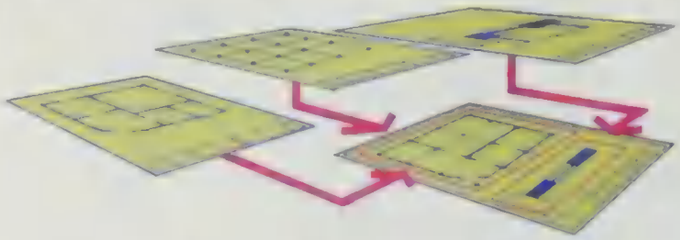
At one level, Graphisoft's ArchiCAD for TeamWork is as simple as ArchiCAD itself. ArchiCAD allows architects to work intelligently; ArchiCAD for TeamWork allows many architects to work intelligently together.

Due to ship in early Summer of 1997, ArchiCAD for TeamWork is a dramatically new method for architects to share the work of designing and drafting on a single building. In fact, sharing work is neither new nor dramatic; it's what architects do every day. What is dramatic and new, however, is that CAD software can now be enlisted to enhance this natural process.

To fully understand and appreciate what ArchiCAD for TeamWork is, we must step back and explain briefly what it is not.

ArchiCAD for TeamWork: A New Metho

The most common technique for several architects to work together on the same project is called the "reference file" or Xref. Using the reference file technique, a CAD file which represents a drawing sheet may "refer" to another CAD file which is then incorporated, in whole or in part, in the original CAD file. These "referenced" CAD files may physically reside on other computers across a network.



The Xref concept is simple to understand, but usually requires extensive set-up and management. This makes it unfeasible for smaller projects and too complicated for larger projects where collaborative work is most critical.

The Xref technique is fairly rigid and also requires extensive forethought by a CAD Manager who must decide how working drawings will be organized. This rigidity makes Xrefs cumbersome to use in the schematic or design development phases of a project. A second, less common technique for sharing work uses interlaced "layers" of information where each layer is a different CAD file.



[illegible] assembled, the layering technique pro[illegible] a central file on a server, but because they are sepa[illegible] is minimal. Furthermore, the same architectural layer cannot be used by more than one user at a time. Thus, using the layering technique, logical layering schemes for working drawings are often compromised to meet the needs of team members who need to access a certain part of the project.

Neither technique offers the simplicity, reliability, flexibility and efficiency to be optimum solutions for collaborative work among architects.

Graphisoft has developed "ArchiCAD for TeamWork" to allow architects to collaborate on a single 3D project, and work together simply, flexibly and securely. ArchiCAD for TeamWork is intuitive and easy to set up and use, and all building information remains stored in ArchiCAD's object-oriented, compact and integrated 3D project file.

Similar in some respects to the document sharing functions in modern operating systems, ArchiCAD for TeamWork offers equal peer-to-peer access to a building project and to object libraries. This allows members of a project team to work on separate parts of the same project, relatively autonomously, and merge their work into a master project file on command.

ArchiCAD for TeamWork uses high level file sharing and is both network neutral and network independent. In order to minimize network traffic and allow team members to work off-line, ArchiCAD for TeamWork does not require a permanent connection with the master project. In addition to minimizing the load across a local network, this has the added benefit of making collaboration feasible across a wide area network (WAN) as well. Access verification, revision logs, and automatic backup features are built into the software itself. No server software other than the network capabilities of the operating system is needed.

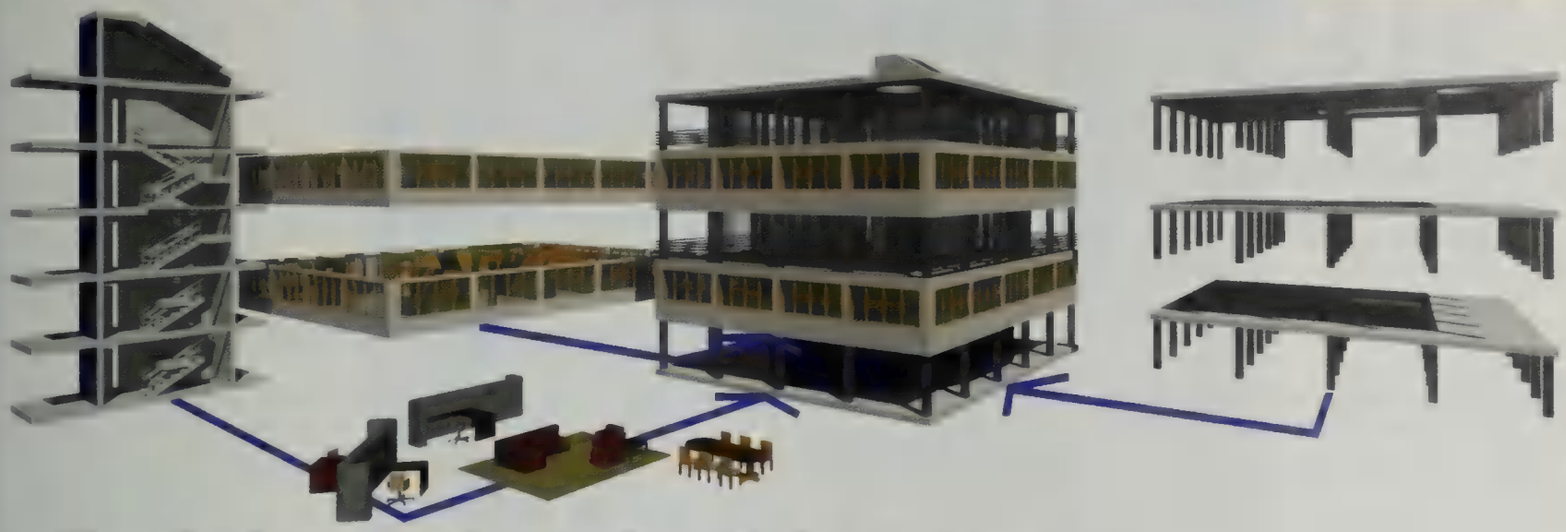
To better understand ArchiCAD for TeamWork, consider the three types of information ArchiCAD users typically manage in a project:

- the 3D building model (ArchiCAD project file)
- the building products used (object library),
- the working drawings (PlotMaker files)

ArchiCAD for TeamWork addresses all three aspects of the architect's work and delivers features to make collaborative work easy and secure.

Project File

New projects may be started by a single architect using ArchiCAD as he or she would today. When the architect decides to share the project with a team, he or she creates a "Shared Project" file and an associated administration file. These files can reside on any computer provided that all team members have access to them. Various access rights and privileges can be assigned at any time.



or Collaborative Architecture

Once the shared project file is created, other team members can "sign in" and begin to work on different areas of the project.

Using any combination of stories, layers and the marquee selection tool, team members define their "workspace." Using these criteria, almost any portion of the project can be selected. For example, a user can select the area within a marquee on the Base and Partition layers and stories 3, 7 and 9. Should conflicts arise when reserving a workspace, a dialog displays the type of conflicts and who has signed out the conflicting areas. A report of team members currently signed in and their workspaces is also available at any time. While signed in, team members can view the entire project, including areas reserved by other team members, but can only create and make changes in their own reserved workspaces.

After a team member signs in, a "satellite" of the project file is created in RAM on that member's local computer. Thanks to ArchiCAD's object-oriented technology, these project files are relatively small. The local computer is used for scratch space and data swapping so that, no matter how many people are working on a project simultaneously, no extra load is placed on the network. At appropriate intervals, team members can "Send" their work to the master project file and "Get" from the master file any changes submitted by others.

Team members may sign themselves into a project, but for added security, ArchiCAD for TeamWork also allows an administrator to preassign teams and workspaces, require an electronic sign-off before changes are sent to the master project file, and lock down the project file element by element.

Subcontractors and consultants can also be part of the team as off-line team members with reserved workspaces. For consultants using other CAD packages, ArchiCAD for TeamWork supports AutoCAD release 13 level dxf and dwg translations as well as the ability to import and re-export unbound Xref files by using ArchiCAD for TeamWork's Group/Ungroup feature.

Library Elements

The parametric object library has always been an essential part of ArchiCAD. These libraries can be on a local computer, on a server, or both. Team members can share one or more centrally located object libraries and/or use a local library on their computers.

If a local - or "Satellite" - library is used, ArchiCAD for Teamwork synchronizes the local copy with the original each time changes are sent or received.

Layout Files

With ArchiCAD for TeamWork will come a new version of PlotMaker, Graphisoft's sheet layout, printing and plotting software. PlotMaker's ability to "hotlink" ArchiCAD drawings to sheet layouts is greatly enhanced and several new features have been added to help large CAD document management.

The new PlotMaker includes layers for both individual drawings and sheet layouts. By using layers in PlotMaker, far fewer ArchiCAD drawings need be hotlinked, saving significant time and disk storage. PlotMaker will also support scripted batch processing so construction document sets can be scripted and plotted overnight, and, like ArchiCAD, it will import/export r13 dwg files and respect Xref file structures using its Group/Ungroup feature.

ArchiCAD for TeamWork is the latest, and one of the most significant milestones since ArchiCAD was first introduced in 1985. In addressing the challenge of multiple architects working together on a single project, Graphisoft has delivered an original solution which strikes at the heart of the problem and solves it elegantly and simply. Since all architects - even sole practitioners - face the need to collaborate with other architects on projects from time to time, ArchiCAD for TeamWork offers an exciting opportunity for architectural firms large and small.

Sign-In To...

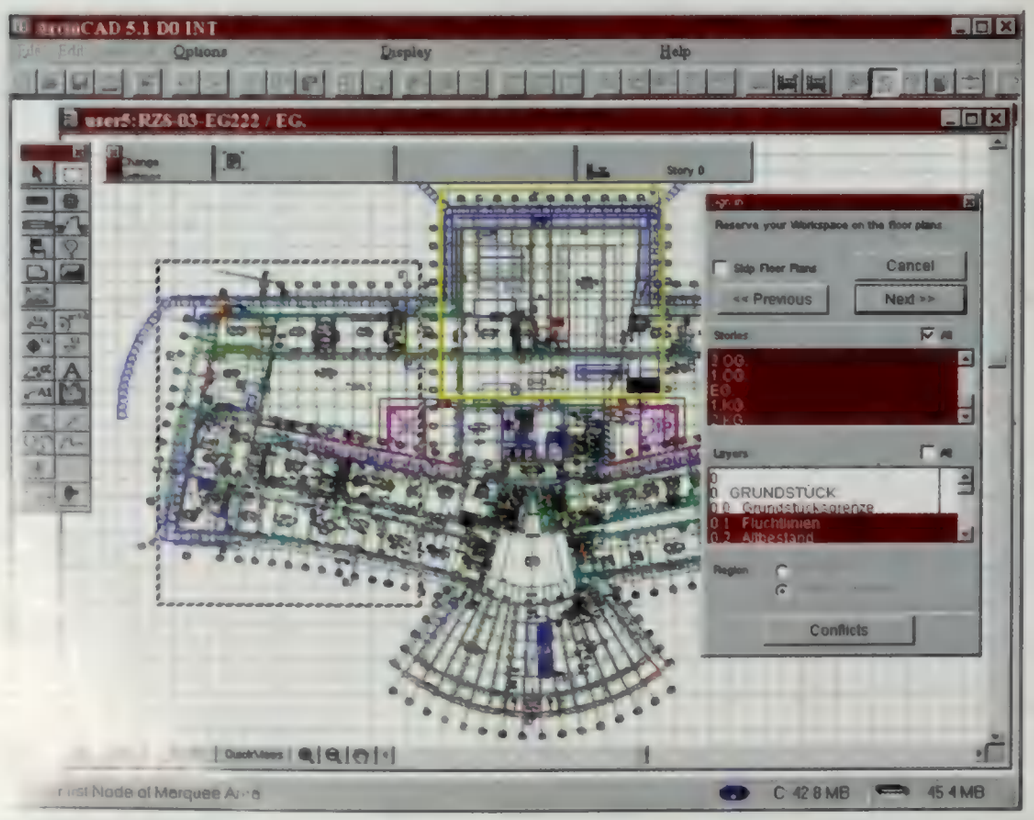
Simply and powerfully, ArchiCAD allows architects to work intelligently. Now, ArchiCAD for TeamWork allows **many** architects to work **together** intelligently.

ArchiCAD for TeamWork is an original and elegant solution to the problem of sharing the work of building design and documentation. Easy and intuitive to set up and use, ArchiCAD for TeamWork allows architects to collaborate **simply, flexibly and securely** - while all building information remains stored in ArchiCAD's object-oriented, compact and integrated 3D project file.

"Graphisoft has taken a great product and made it even better. With projects becoming more complex and the need for information to be shared with more people, ArchiCAD for TeamWork will improve efficiency and document management."

- Chuck Hill, Orcutt/Winslow Partnership

Employing document sharing functions similar to those of modern operating systems, ArchiCAD for TeamWork offers equal peer-to-peer access to a 3D building model and object libraries across LANs or WANs. Its high level file sharing is both network neutral and network independent. ArchiCAD for TeamWork also supports collaboration with engineers and consultants with AutoCAD r13 dxf and dwg compatibility and the ability to import and re-export Xref files using its new Group feature.



Recreation Center - Bad Schallerbach. Architect: D.I.W. Nuhsbaumer, Vienna, Austria



Harkins Theatre. Designed and modeled in ArchiCAD, rendered in Artlantis Render. Architect: CCBC Architects, Inc., Phoenix, Arizona.

ArchiCAD® for TeamWork

"Flexibility and simplicity of ArchiCAD for TeamWork are key attributes for our design team who work on large scale projects with tight deadlines."
- Marty Ball, CCBC Architects, Inc.

"ArchiCAD for TeamWork shows that Graphisoft is committed to offering solutions to large architectural offices."
- Randy Sietz, The Core Group

"We're excited about the new possibilities this opens up for us to work collaboratively among our offices."
- Bradley Skaggs, STUDIOS Architecture

ArchiCAD for TeamWork will be available for Windows 95/NT and Mac OS in early Summer, 1997.

For the ArchiCAD distributor nearest you, see the listing on the back page or visit **www.graphisoft.hu**.

In the United States and Canada, call **800-344-3468** for the name of a local reseller and a **Free Videotape*** explaining the benefits of ArchiCAD, or visit us at **www.graphisoft.com.**

** free shipping in the US and Canada only.*

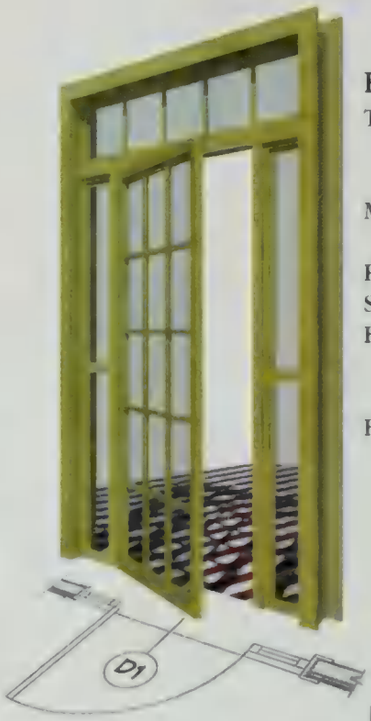
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The Objects Among Us

With a few clicks of a mouse button, an employee at Champion Products can change a store's Spring collection to Summer. He can also visualize the new store interior, count inventory and track style numbers. The ArchiCAD-based virtual merchandising system, developed by Logikos in New York City, not only aids in controlling brand image, but can greatly accelerate store planning and visual merchandising work in an industry where time equals money.

Toronto architect Willem Langelaan was able to clad a continuously curved wall by setting MasterLibrary's spandrel curtain wall element to one module wide by 12 stories tall and using ArchiCAD's "Multiply..." command just once for each of the 3 curved wall sections. The window elements adapted themselves automatically to the curvature of the walls, resulting in a crisp and accurate representation in both floor plan and perspective.



PROPERTIES

Type:	Ext. Door w/Sidelights & Transom
Mfr:	Andersen Door & Window Corp.
Part:	FWH 3168
Size:	5'0 x 8'0 r.o.
HW:	Schlage Brass anod. alum. lockset and lever
Fin.:	Nat. satin polyurethane 2 coats

Thanks to identical object libraries used in their respective offices, Architechnology in Cincinnati, Ohio, and Design Integrations in Atlanta, Ga., were able to exchange elaborate house models by email as they fought a deadline to produce a collection of 12 custom homes for Stephen Fuller/Design Traditions.

In Phoenix, Ariz., the Orcutt/Winslow Partnership used original drawings of Fountain Hills High School to create a 3D library of original details and reassemble them quickly to generate a successful design for an addition that maintained both a technical and aesthetic continuity with the old school.

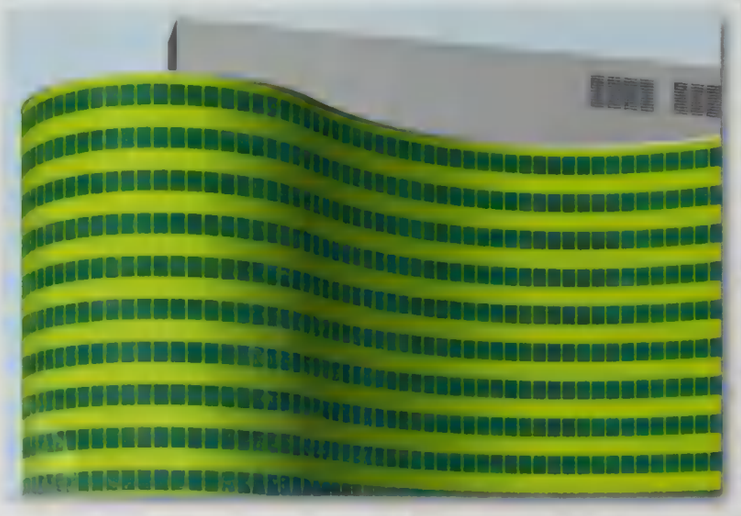
They may seem like visions of the future, but these architects - and thousands more across the globe - use ArchiCAD's intelligent building objects every day in these and other ways.

ArchiCAD has offered architects a building-object oriented working environment [illegible] release in 1985. ArchiCAD's external libraries of building parts are unique because they simultaneously manage and store the three essential types of information needed to design and document buildings:

- 3D geometry and finishes for producing renderings and calculating surfaces and volumes,
- multiple 2D CAD symbols to represent the object at different scales and conditions such as the DIN vs ANSI drafting standards or product variations within a product line, and;
- text information for specifications, quantity take-offs, calculations such as heat loss/gain, cost estimating, and inventory tracking.

ArchiCAD's object technology extends beyond libraries of building products and underpins all of the architectural elements of a building. For example, walls in ArchiCAD are not just parallel lines in plan; they can contain valuable information about their composition, materials, finish, height, price and connection to other walls, columns, floors and ceilings. All of this data is viewable in the form of perspectives, elevations and the bill of materials which are generated automatically from the floor plan.

Equally important is ArchiCAD's ability to alter an object's appearance and behavior according to rules which can be embedded within objects. For example, a staircase, when enlarged graphically in plan, can "know" that new treads should be added according to a given rise-to-run ratio rather than simply making the treads appear wider; a door can "know" that, when it is displayed at large scale in plan or section, additional detail should appear; a window can "know" that it is an Andersen brand casement and that only certain trim and hardware are available for it; a wall can "know" how to wrap its sheathing around a column; a steel beam can "know" that its length can be changed but never its cross section.



Curvilinear building by Willem Langelaan uses curved glazing system

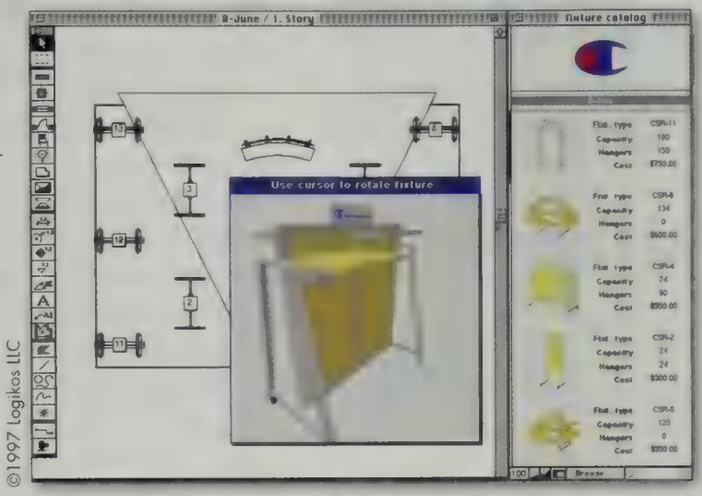
ArchiCAD delivers this intelligence

ARCHITECTS IN THE INFORMATION AGE

They may seem like visions of the future, but these architects - and thousands more across the globe - use ArchiCAD's intelligent building objects every day in these and other ways.

to architects around the world by using the "Geometric Description Language," or GDL. Developed by Graphisoft in 1982 and continuously improved ever since, GDL is the foundation technology of ArchiCAD and the common format for the tens of thousands of building parts in existence today.

Similar to common printer languages such as Adobe's Postscript and Hewlett-Packard's Printer Communication Language, GDL describes geometry in a language (i.e. text) form. Unlike these languages, however, GDL describes objects in three-dimensions as well as two-dimensional drafting symbols and lists of properties. GDL contains "geometric primitives" which describe shapes such as BRICK, CYLIND(er), and MESH; "transformation statements" which define scale, orientation and location using x, y and z coordinates and statements such as MOV(e), ROT(ate), MULT(iply); and "directives" which describe the object's appearance using material names such as PINE. When ArchiCAD is used, these GDL statements are "executed" which make the objects described by GDL behave and appear as either rendered views, CAD symbols or a list of properties and values.

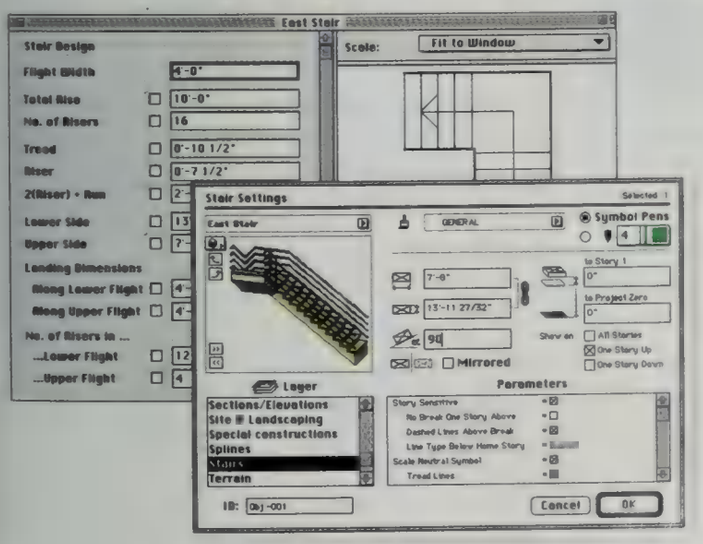


Logikos' virtual merchandising system helps retailers layout space & track inventory.

In addition to its rich description language, GDL features a scripting interface resembling the BASIC programming language. Architects can simply write "scripts" of how objects should appear and act under certain circumstances or "parameters." Users can enter variables such as unit cost, heat loss, or pieces/area in the script or through graphic dialogs. These variables can then be used in formula to dynamically track project cost, energy use, materials used or almost anything which can be derived from the building's surface or volume.

A GDL object can also reference another GDL object, data from other software, or external information from ArchiCAD such as drawing scale, view point, and local origin. External databases can be accessed by GDL's open-architecture so that values from a database can directly impact CAD drawings and, conversely, changes made in the drawings can directly impact values and specifications in a separate project database. GDL can also store parameters to be used by external applications, such as StairMaker and ArchiSITE, which are written especially to work inside of ArchiCAD.

GDL was the first intelligent building object technology for architects using desktop computers, and Graphisoft will continue to enhance GDL and expand its reach and availability. If standards are set by common use and accessibility, then the GDL format employed by ArchiCAD is truly a standard today. If standards are a reflection of superior and ever-improving technology, then GDL will be a standard for tomorrow as well.



(1000's of Objects Available + 1000's More Compatible) x Parameters = Millions of Products

ArchiCAD includes a library of more than 600 three-dimensional objects covering the entire range of construction needs from site planning to detailing and special equipment. Based on ArchiCAD's GDL format, each object is highly "parametric" and compact: building parts may be as small as 5Kb, and are generally no larger 50Kb, easily transportable across a network or even the Internet.

Thousands more building parts are commercially available in specialized object libraries developed by experienced ArchiCAD users. These libraries usually focus on specific needs, such as populating a rendering (People & More), office furniture systems (ArchiMOS), kitchen design (M.A.D. Design), or wood mouldings (Smart Parts Trim Library). For more general needs, Master Library offers more than 400 additional objects including an advanced library of lighting fixtures.

In addition to library parts created specifically for ArchiCAD, other 2D CAD symbol libraries and many 3D libraries can be converted easily to GDL. GDL reads dwg and dxf formats of CAD symbols and will import 3D objects in dxf, 3D Studio or ZOOM file formats without loss of colors and material attributes.

Contact a local Graphisoft distributor for more information and a list of available libraries, or visit the Graphisoft web sites, **www.graphisoft.hu** and **www.graphisoft.com.**

Premium Insurance for Young Firm

ArchiCo-Projekt Ltd.
Warsaw, Poland



One of the competition entries of the PZU Tower rendered by ArchiCo-Projekt, Ltd.

The Warsaw, Poland, based architectural firm, ArchiCo-Proj Ltd., assumed one of the greatest challenges of its short h tory when it decided to enter the PZU Tower competition i Warsaw. The design program called for 68,000 square meters (71,800 s.f.) of office space and ancillary spaces to house the head quarters of PZU, Poland's largest insurance company. Entries to th design competition, held late last year, came in from firms through out Europe. The 18 person firm, led by architects Piotr Szaroszyk a Konrad Tanasiewicz, had to be audacious to have a chance at victo

"Because we have such a young office and the competition was strong, we needed to be faster with a more professional presenta- tion," said Konrad Tanasiewicz. Although they only had a little time to prepare their submission, they chose to create a complete three- dimensional model of the proposed building so they could spin-off large number of rendered, accurate views and and show their desi in its true site context. Their choice of ArchiCAD made this strategy feasible because of the software's efficiency as a building modeler and its integrated file structure, which would make 3D modeling, 2D drafting and tracking a bill of materials almost simultaneous process.

Within 20 days of beginning the project, the design team had produced not one, but three building desig complete with models, renderings, photomontages an animations. To show their proposed designs in the co- text of the site in downtown Warsaw, the team pro- duced several photomontages using ArchiCAD and Adobe Photoshop. Additional renderings, plans, sec- tions, elevations and animations were also part of the submission package. All of the presentation materials were generated from the same 3D model, giving ArchiCo-Projekt Ltd. an edge over the competition in generating more information at a higher speed.

The jury is still out on the PZU Tower competition, b based on an overwhelming presentation of three designs and a clear explanation of how each proposed tower would really work in 3D, ArchiCo-Projekt Ltd. is the running with firms twice its size.

ArchiCo-Projekt Ltd. has used ArchiCAD to create numerous projects ranging from simple dwellings to large shopping centers. According to Szaroszyk and Tanasiewicz, there is no better way to illustrate the valu of 3D visualization than a design competition. "This is one of the greatest benefits to clients. At last, they can see a building before it built," said Tanasiewicz. "They can suggest changes – move walls and windows, and modify the facade and landscaping. They can even look out their windows to see the view."

The Plots Thicken

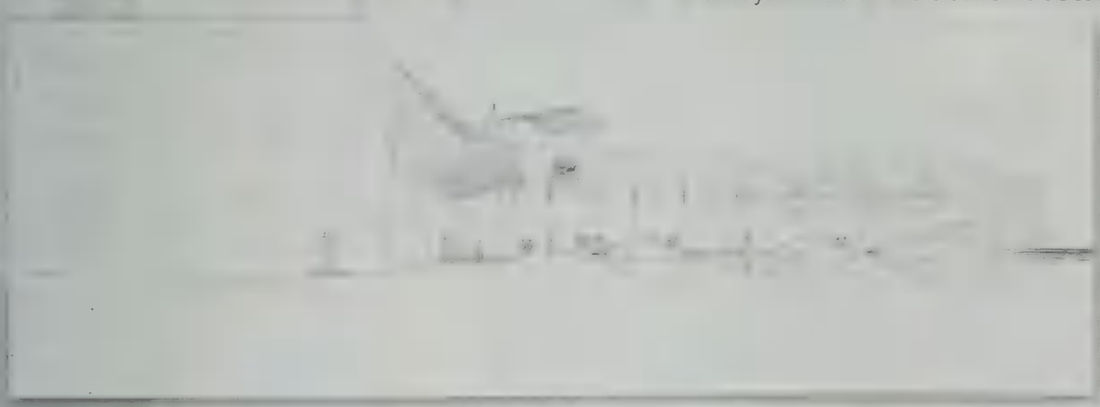
Roger J. Thrum & Associates
Sydney, Australia

Imagine plotting hundreds of drawings per day on a regular basis and using a mile of plotting paper in one weekend. Six hundred plots a day might sound like an unbelievable figure, but it has become routine for leading Sydney, Australia, architectural firm, Roger J. Thrum & Associates, ArchiCAD users since 1988.

Warringah Mall, a shopping complex located 20 kilometers north of Sydney, will cover a 170,000 square meter (1,830,000 sq.ft.) site, making it the second largest mall ever built in Australia. Plotted at 1:100 scale, the project requires more than 450 A1 sheets to cover the entire site and all stories. More than 2000 drawings are expected to be produced as part of Stage 1 alone. The challenge of outputting documents at this scale is daunting, but the dedicated ArchiCAD team led by CAD Manager, Sam Bassilious, has been managing the job successfully.

With the help of Archigraph, ArchiCAD's Australian distributor, an innovative method of linking ArchiCAD documents to a drawing control database was developed. This Document Management Database helps Bassilious control and direct the scope of work required on a given section of the building model. Team members can access the model at any time, select the area of the model for which they are responsible, and see from the database the extent of work required. The Document Management Database tracks the minute by minute status of all of the drawings in the project.

The Document Management Database issues current drawings only and has the ability to monitor the progress of all drawings against the construction program. Every member of the project team is always aware of the electronic documentation's progress.



Wire frame view of Australia's second largest shopping mall designed by Roger J. Thrum & Associates.

Roger J. Thrum & Associates uses only ten of their seventeen ArchiCAD workstations on the Warringah Mall project, allowing the remaining stations to operate on various other jobs. Strict deadlines for submitting thousands of drawings repeatedly challenge the architects, but Sam Bassilious and his team are meeting the requirements:

"We often plot more than six hundred drawings a day. One weekend alone we plotted more than 1,500 drawings. I don't know how we would have been able to do this without ArchiCAD."

Exceeding Expectations

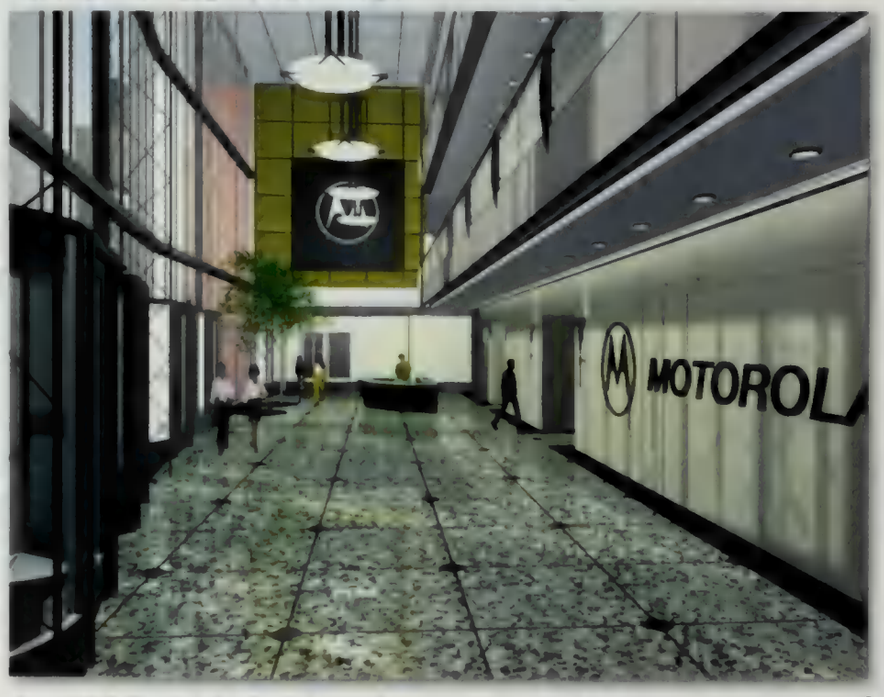
Kayhan International, Limited
Schaumburg, Illinois

When your biggest client asks you to design the interior of their 18 story Greater China Headquarters building, and the client is Motorola, you not only get the job d on time, but you strive to exceed even their highest expectations.

Recipient of the Motorola Vendor Quality Award and an ArchiC client since 1993, the 60-person architectural and interior design firm, Kayhan International Limited, has been exceeding Motorola's expectations for 14 years with projects completed in 26 countries including architectural design, interior design, contract furniture a installation. Kayhan is known for quality in every project they do, from 300-sq. ft. (28 sq.m.) offices to 1.2 million sq. ft. (114,000-sq.m.) high-rises.

"Our motto is 'from concept to move in,' integrated service is something clients want," said Daniel Hellriegel, Kayhan's Executive Vice President, "We believe in doing everything technologically pos ble to serve our client."

Kayhan's latest project for Motorola is the interior design of the story Motorola Greater China Headquarters in Beijing, China. Using ArchiCAD, Kayhan created animations of Haworth's open plan furnit to analyze workstation requirements and various tea concepts.



Renderings of the first floor lobby of Motorola's Greater China Headquarters exceeded Motorola's expectations.

Because of an incredibly tight schedule, Hellrieg enlisted Architechnology, a service bureau in Cincinn Ohio, to help with the modeling, rendering and a mation work of the three-story lobby and executiv boardroom.

Architechnology had less than two weeks to pro duce the 3D model and renderings which required extensive custom detailing. The biggest challenge was meeting the deadline while living up to Motorola's high standards. Kayhan didn't want to lose sight of their belief that, while finding innova tive solutions for their client, they could again exc Motorola's expectations.

Joe Bayer, President of Architechnology, explains why ArchiCAD made the work easier on a critical deadline: "Because of ArchiCAD's integration, ever thing I did in plan or section was automatically updated in 3D. ArchiCAD also facilitated the repet tive custom details in the project."

In late February, Kayhan unveiled the renderings i an eight-hour presentation to Motorola's Construction Departmen At the request of Tom Sun, Vice President and Corporate Director o Logistic Operations for Motorola, the entire Peer Review presentati was videotaped to be used as an example of standards to strive for design quality.

"They were very impressed by the quality of the renderings, and the first question was what technology was used to produce them, said Hellriegel, "ArchiCAD sold them on the project - they were abl to see with such outstanding quality just what they were getting."

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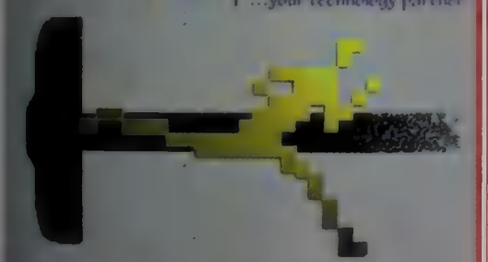
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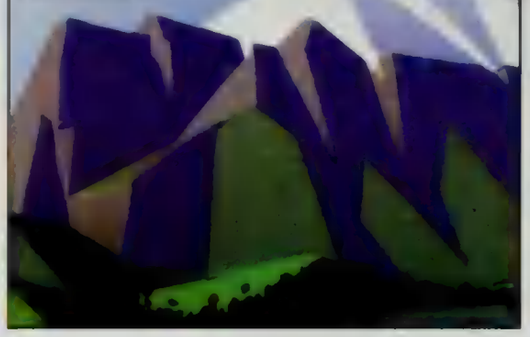
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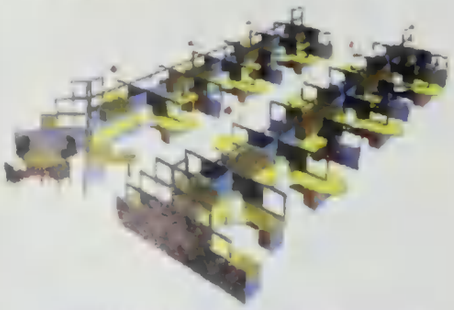
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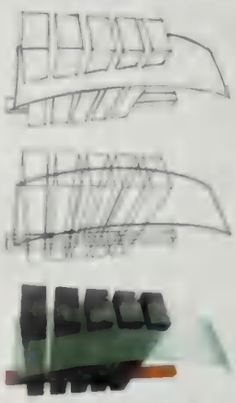
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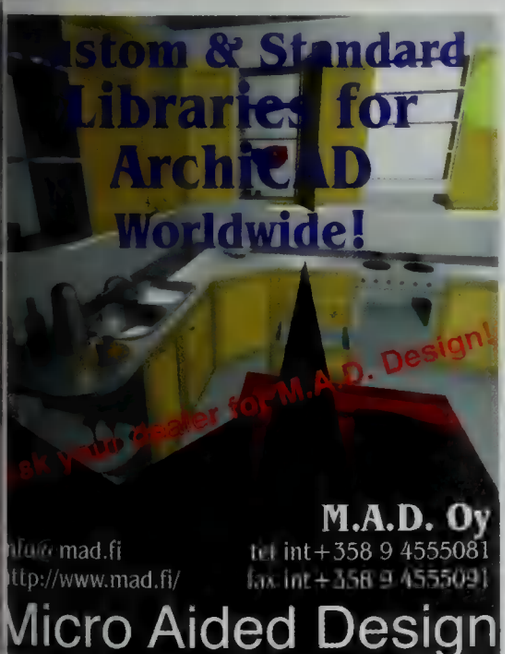
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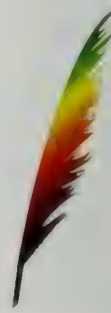
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CIRCLE 80 ON INQUIRY CARD

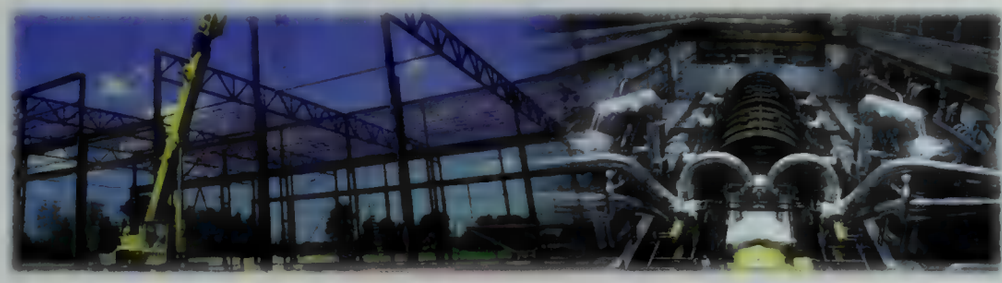
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CIRCLE 73 ON INQUIRY CARD

NEW PRODUCTS

New Products in May includes ■ track system that uses the designer's choice of fabric to "upholster" walls and ceilings, meeting a range of acoustic and decorative criteria in ■ Class A treatment. Also, window coverings for commercial and institutional interiors, especially different versions of the increasingly popular woven-fiberglass shades that permit a view to the outside while shielding occupants from glare. The Briefs pages cover some new products for healthcare (an antibacterial toilet!), and miniatures of buildings that no longer exist. And there are four pages of Literature.—*Joan Blatterman, New Products Editor*

SITE-ASSEMBLED FABRIC PANELS FOR SOUND-CONTROL AND DECORATION

First marketed in the early '90s, the Novawall interior-wallcovering system uses proprietary extruded-plastic profiles to hold fabric under tension. Though primarily a wall-finishing technique, the system can also be used on ceilings, as the fabric is kept under an even, constant stretch that is said to preclude sagging. Each Novawall installation is custom-designed for a specific interior, and applications can range from simple panels or bands intended to dampen incident noise in offices, and tackable surfaces near desks, to large-scale projects that combine noise control with interior decoration throughout an auditorium, theater, or sound studio.

Installed over—and held away from—an acoustically absorbent fiberglass board, the upholstered wall has a different look than a direct-glue treatment.

The wall design can handle fabric-panel separations with several different joint or reveal profiles, including 1/2- and 1-in. square joints; a 1-in. radiused joint (a softer, puffy look); a 1-in. bevel-edge; and the most prominent, a 1/2- or 1-in. reveal (detail, right). This reveal can be finished in a metallic trim, or covered with the wall fabric, as shown. Crisp panel-edge treatments are created by the framing channels that hold the fabric in a line of gripping "teeth" and provide space to tuck the cut ends of the fabric. The plastic track is stapled directly to the gypsum board, plywood, or other wall substrates, following the predetermined layout, and shimmed as necessary to allow for surface irregularities. An acoustic fiberglass-board core is installed flush and level with the frame, and the specified fabric is stretched from one track to another using a special mounting tool. There are track configurations specifically to accommodate inside and outside corners. A specified level of acoustic performance (per ASTM C423) is met by selecting the required board density and thickness, up to 4 in.

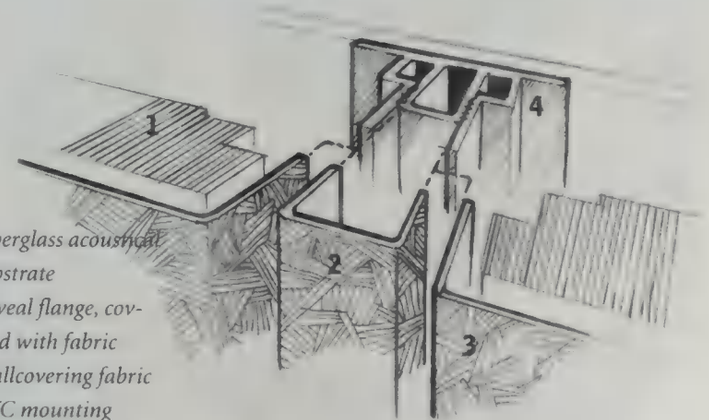


Fabric options

Novawall makes the fire-resistive mounting system only; the designer must specify fabric that passes ASTM E84 (NFPA 255) to insure that installations meet code requirements. The framing is rugged enough to take even a heavy tapestry fabric; thin materials such as silk should be backed to prevent distortion and show-through. (Some fabrics are not suitable for areas of high humidity.) Wall-fabric designs that must be railroaded, with framing at top and bottom only, require a material with enough vertical give to take the tension needed to keep the fabric taut and away from the surface of the backing board.

The corporate conference room, left, designed by Perkins & Will, has 1-in. square-edge panels inset flush with sapele mahogany millwork surrounds. The installation has blocking behind the fabric to allow for hanging and repositioning artwork. For the large auditorium space, right, in the new Owens Corning headquarters designed by Cesar Pelli & Associates, ■ gray woven (Devon fabric from KnollTextiles) is set in a distinctive diamond pattern of 1/2-in. reveals on the convex, upwardly canting walls. The curvature of the wall surfaces required a very absorptive, 4-in.-thick backing to avoid acoustical 'hot spots'. For complex installations like this, the manufacturers will supply architects with a full-scale mock-up of the wall design, including all of the different reveals, panel joints, and corner treatments intended. Obviously, the more intricate the design, the more installation labor required, increasing costs. A complete architectural binder details all edge and reveal conditions, and supplies acoustic and flame-spread data. 800/695-6682. Novawall Systems, Inc., Reno, Nev. CIRCLE 240 ■

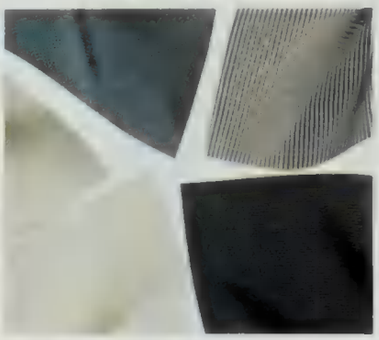




1. *Fiberglass acoustical substrate*
2. *Reveal flange, covered with fabric*
3. *Wallcovering fabric*
4. *PVC mounting track, fixed to wall*

WINDOW TREATMENTS FOR ARCHITECTURAL SPACES

Window treatments in commercial and institutional spaces should be considered an integral part of the design, not as an intrusion on the architecture. Shading must be included in the program from the start, not as an afterthought, and the cost of various manual or power-control options should be built into the budget. New screening materials can meet the most stringent flame-spread requirements while offering a range of color and openness options that provide glare- and light-control for occupants—and lower hvac bills—without compromising the exterior esthetic.



▲ Custom shading

This fabricator can make up its imported Solar Scrim material into window treatments that fit most architectural requirements, such as extra-wide roller shades (either pull-down or motorized); fixed screens for indoor or exterior installation; sun-control Roman shades; and verticals. Made of fiberglass in a 98-in. width, the material meets California 19 and NFPA 701 flame tests. 914/592-4545. Window Modes, New York City. **CIRCLE 241**

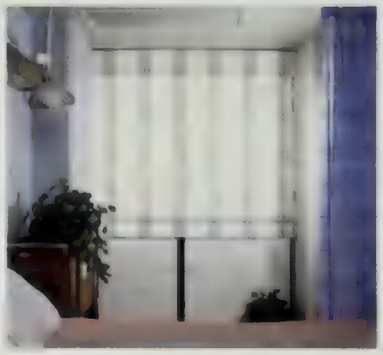
► From France in colors

Made using a new weaving process and three separate colors of glass-fiber yarns, Thermoscreen shading fabric now comes in 78 designs, each with two different sides. Available in a range of see-through transparencies and suitable for exterior installation, where solar control is most efficient, Thermoscreen can also be made into interior blinds and shades. Mermet, S.A. , Lyon, France. **CIRCLE 242**



▼ Hospital window covering

The CuraFlame Level-Lok blind is a "woven-wood" look made up in an inherently flame-retardant combination of CPVC slats woven with modacrylic yarns in versatile colorways. Intended for the special cleaning and maintenance requirements of healthcare settings, shades are said to retain a new appearance over a service life of at least 10 years. Cord-free operation meets standards for psychiatric wards; blinds are rugged enough for student dorm rooms. 800/262-9322. Webb Designs, Inc., El Cajon, Calif. **CIRCLE 243**



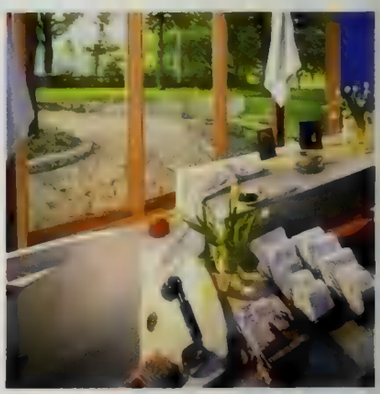


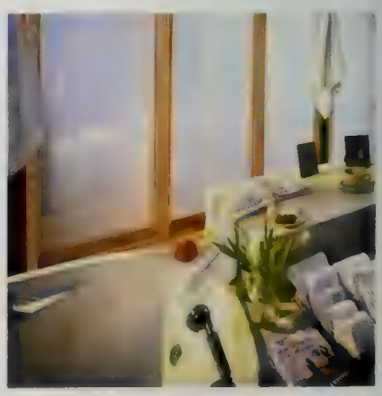
▲ Challenging sun control

The hard-to-reach and special-shape windows of Ohio State's Wexner Center were covered by custom shadings in colors that blended with the white, bronze, and silver-tint glass and maintained the esthetics of the design by architect Peter Eisenman. Proprietary clutch-operated shades, for manual and motorized operation, can be assembled to suit the most difficult placements. 800/742-3372. Inside Outfitters, Dublin, Ohio. **CIRCLE 244**

▼ Through a glass sometimes

A high-tech glazing option that is working its way into everyday projects, Privacy Glass made by Viracon can be specified in Marvin Casemaster wood-framed residential windows. Now available in tints—bronze, gray, and green—that are said to improve viewing clarity, switchable glass incorporates a liquid-crystal film from 3M that gives a "frosted" appearance when not being charged. When a tiny amount of electricity is applied, the glass becomes clear, providing an unobstructed view out. The amount of light transmitted is identical whether the glass is "on" or "off". Privacy Glass can be ordered as single-pane or insulating configurations. 800/346-5128. Marvin Windows & Doors, Warroad, Minn. **CIRCLE 246**







◄ Dual-function screening

Made of a vinyl-coated fiberglass in a tight weave, Phifer new "20 by 30" screening provides protection from insects as well as a significant amount of glare- and solar-control. It improves daytime privacy compared to standard aluminum mesh, and permits a clear view out (dark colors are easier to see through, as they absorb the incident glare that obscures viewing through lighter-colored materials). Intended for fixed installation on the outside of windows, screening comes in widths up to 84 in. 800/633-5955. Phifer Wire Products, Inc. Tuscaloosa, Ala. **CIRCLE 245**

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Photos courtesy of Mannington Commercial and CertainTeed Corp.

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PRODUCTBRIEFS



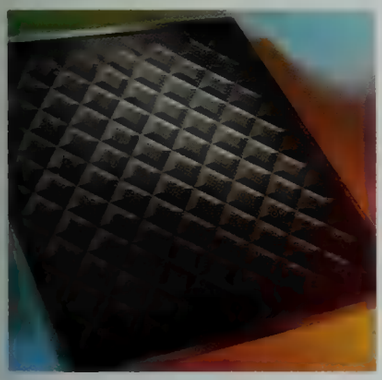
◄ Triple-function

Part of a total healthcare communication system, the Spectrum 760 message-light unit incorporates three modes: Room Status, to indicate open rooms and those requiring service; Staff/Patient Sequencing, with multicolored annunciators showing where doctors are, and who gets seen next; and Patient Call, to alert nursing staff for help. 800/621-1903. Jeron Electronic Systems, Inc., Chicago. **CIRCLE 249**



▼ Metallic lay-in ceiling

Part of this maker's SoundAbsorber line of non-fibrous noise-control panels, "clouds", and baffles, the Type I module is made completely of steam-cleanable aluminum. Said to have an NRC of 0.80, the ceiling is suitable for hospital operating rooms. Industrial Acoustics Co., New York City. **CIRCLE 247**



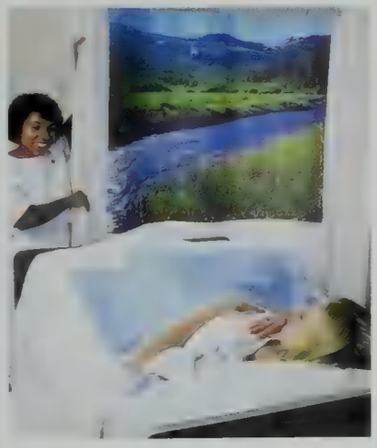
▼ Germ-fighting W/C

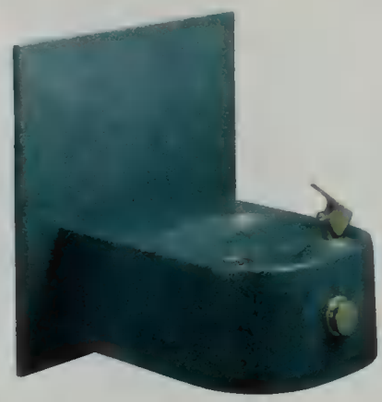
Using a new china-glaze technology, Toto now offers a commode said to actively inhibit the growth of germs and to kill common bacteria. The antibacterial glaze also prevents staining, lime, scale, and "toilet-ring buildup." Also available on floor and wall tiles; the glaze is a permanent metallic coating which breaks down water and oxygen when exposed to light. 770/282-8686. TOTO Kiki USA, Inc., Morrow, Ga. **CIRCLE 248**



▼ Soothing patient space

Winner of healthcare product-design awards, Bedscapes is a selection of high-resolution photographic murals of nature scenes printed on fire-retardant, washable fabric hung from cubicle-curtain track fittings. Accompanied by recordings of corresponding sounds from nature, the scenes are claimed to create a soothing environment that reduces stress and speeds healing. Sets cost about $250 per bed. 914/657-8300. Healing Environments, Woodstock, N.Y. **CIRCLE 250**



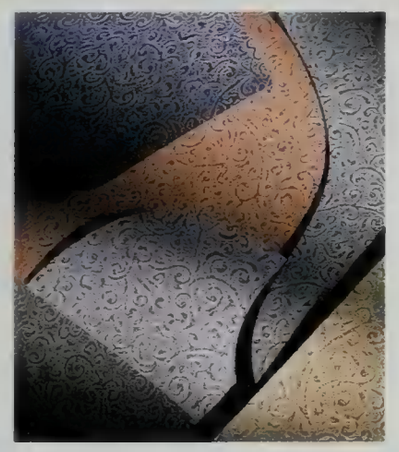


▲ Curvaceous drinking fountain

A new line, SoftSides Colors is made of a nonporous polymer composite in emerald green (pictured), black, and gray granite-look patterns, as well as a solid white. Waterways are lead-free. The curved shape has no blunt corners which can cause injury; most models meet ADA guidelines when properly installed. 630/574-8484. Elkay Mfg. Co., Oak Brook, Ill. **CIRCLE 252**

▲ Colorful floorings

Made for the heavy foot and wheeled traffic of healthcare spaces, Medintech sheet vinyls come in new, more monolithic-appearing contemporary colors. Patterns are low contrast, for easier identification of small dropped objects. Camouflaged welding rods help create a seamless-looking, boldly patterned floor. Architectural sample program. 717/397-0611. Armstrong World Industries, Lancaster, Pa. **CIRCLE 253**



► Healthcare fabric

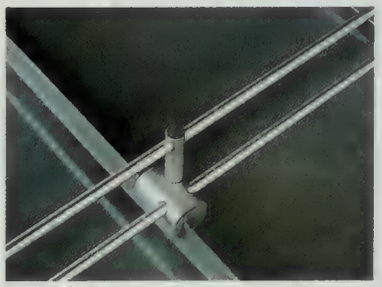
Also a design-award winner, Maharam's Duratex Atelier collection includes 10 patterns developed specifically for use as patient-bed cubicle curtains. Some motifs, such as Pointille (pictured) are an unusual 72-in.-wide without a repeat. The fabric itself is fire-retardant Trevira CS, a European textile said to have a soft, cotton-like hand, also suitable for drapery and bedspread applications in hospitality settings. Swatches of all 10 designs offered. 800/645-3943. Maharam, New York City. **CIRCLE 251**



▲ Rugged wallcovering

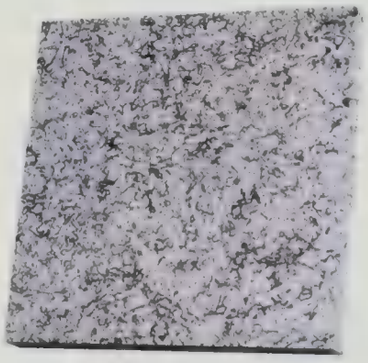
Ravenna is one of several new patterns in 54-in.-wide vinyl wallcoverings for healthcare, hospitality, and other heavy-duty interiors. The Escher-like pattern, in a single color over a solid ground, creates a subtle, visual interest in an easy-to-manage scale. Colorways are selected to work with shades offered by manufacturers of carpeting, flooring, and laminate surfaces. 201/489-0100. Lanark Wallcovering , a Division of Gencorp., Hackensack, N.J. **CIRCLE 254**

PRODUCTBRIEFS



▲ Snow retention assemblies

S-5-A snowguards can be constructed in a variety of unobtrusive, color-matched assemblies for standing-seam metal roofs. The resulting SnoRail and SnoFence systems, when installed correctly, "will not," according to Mizell, "inhibit the thermal movement of standing-seam panels." 404/875-9361. Mizell Bros. Co., Atlanta. **CIRCLE 255**



▲ Acoustical panels

Conwed Designscape has added Subtle Textured (off-white or other soft color finishes) and Design Textured (speckled, metallic, woven, and pearl finishes) styles to its collection of painted and textured acoustical panels for walls and ceilings. The panels have a glass-fiber core with chemically hardened square, radius, or beveled edges, with different mounting options. 800/932-2383. Conwed Designscape, Ladysmith, Wis. **CIRCLE 256**

► Double chaise and canopy

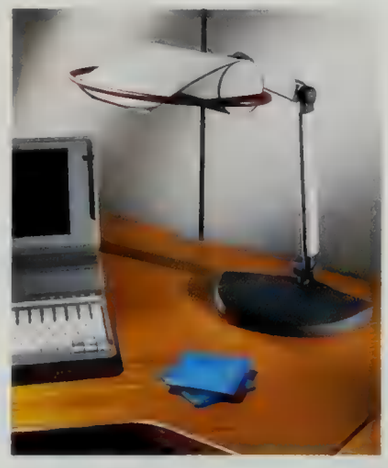
A new model from Weatherend, the Southern Harbor Double Chaise is made of mahogany or teak using mortise and tenon joinery, with custom brass hardware that allows each seat to be adjusted individually. The company's marine finishing system, available in custom colors, is said to withstand years of use and exposure. The foldable sun and wind canopy is constructed from lightweight aluminum tubing and covered with Sunbrella, a stain- and mildew-resistant fabric. 800/456-6483. Weatherend Estate Furniture, Rockland, Maine. **CIRCLE 257**



▼ Decorative laminates

Designed to provide a glimpse of its offerings for 1998, Pionite has introduced nine new decorative laminates for both general-purpose and postforming applications. Several have dimensional effects, including Moroccan Fresco, a rag-rolled pattern in an earthy tone; the Impression Series, which includes Opal, Celadon, and Slate designs inspired by artists like Claude Monet; and Terrazzo, pictured below, a multi-colored design with a mosaic-like pattern. 800/746-6483. Pionite Decorative Laminates, Auburn, Maine. **CIRCLE 258**



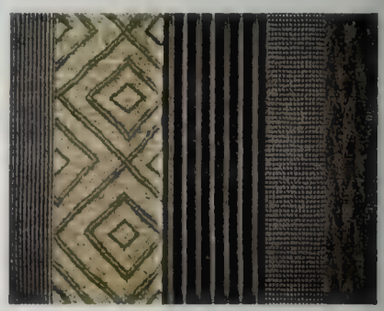


▲ Portable task light

The Pavo desk lamp has a computer-designed optical system said to provide asymmetric light distribution without direct or reflected glare. It has dual articulating arms with an integral grab ring available in black, slate blue, or burgundy. Pavo, which holds a 13W compact-fluorescent lamp, may also be ordered in clamp- or panel-mounted versions. 615/325-7727. Garcy/SLP, Portland, Tenn. **CIRCLE 259**

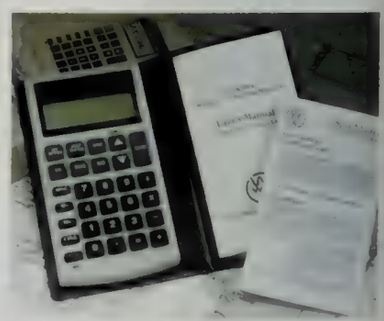
▼ African-inspired fabrics

Textiles of Africa from Sina Pearson includes Kente Cloth (vertically striped worsted wool and linen); African Stripe (grospoint construction with a hand-dyed look); Savannah (cotton blend pattern inspired by rough-cut tribal block prints); and Kuba and Raffia Cloth (chenille fabrics). 212/366-1146. Sina Pearson Textiles, New York City. **CIRCLE 261**



▼ Hand-held span calculator

The SpanMaster is offered as an aid for quickly designing uniformly loaded Western lumber beams, headers, joists, and rafters with a cross-sectional dimension up to 24 in., as well as spans for machine-stress-rated (MSR) or structural-glued Western lumber. $39.95. 503/224-3930. Western Wood Products Association, Portland, Ore. **CIRCLE 262** ■



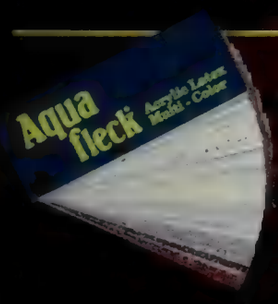


◄ Lost designs in miniature

Russian-born designer Constantin Boym has replicated in miniature some of the century's visionary proposals, as well as seminal buildings that no longer exist. Among his cast-bronze, 3- to 5-in-high, $60-150 "Missing Monuments" are Malevich's Architekton (1920), McKim, Mead & White's Pennsylvania Station (1910), and Loos's Chicago Tribune Column (1922). 212/228-4037. Boym Design Studio, New York City. **CIRCLE 260**



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PRODUCT LITERATURE



Silicone sealant performance

A brochure on new 756 Building Sealant H-P explains how it has been engineered for porous and esthetically sensitive substrates. Described as a non-streaking compound that should insure lower life-cycle costs, 756 is covered by a 20-year warranty. 800/346-9882, x 8316. Dow Corning Corp., Midland, Mich. **CIRCLE 263**

Abuse-resistant wallboard

A catalog explains how Sheetrock panels were designed to withstand surface indentation and through-penetration better than standard drywall. Combined with systems such as Imperial Finish Plaster, the panels offer a cost-effective and abrasion-resistant interior wall for heavy-traffic interiors. United States Gypsum Co., Chicago. **CIRCLE 264**

Tile-setting product line

Catalogs detail mortar, grout, and adhesive systems for different weather and [illegible] conditions. Epoxy grouts for [illegible] mills and [illegible] and [illegible] products for [illegible] and [illegible] applications. [illegible] Laticrete International, Bethany, Conn. **CIRCLE 265**

Model codes

The newest Uniform Building Code reflects the latest technological advances in building design, including updated sections on means of egress, concrete, seismic isolation, accessibility, structural forces, and roofing. Published in three volumes, available separately, the 1997 edition also comes in CD-ROM format. Also new: the 1997 Uniform Fire Code and the Urban-Wildland Interface Code. 800/284-4406. International Conference of Building Officials, Whittier, Calif. **CIRCLE 266**

Rugged bedside lamp

Catalog pages illustrate different Nightingale lights built to meet the requirements of healthcare and other institutional settings. Bulb guards deter theft; PolyLast shades are described as "virtually indestructible." 800/558-2628. Adjustable Fixture Co., Milwaukee, Wis. **CIRCLE 267**

Swimming-pool equipment

Paragon's 1997 catalog has 24 pages on pool-deck and underwater products for recreational, competitive, and resort pools. New items include a "fast start" starting platform, parallel bars for aquatic [illegible], and portable lifeguard chairs. Details and engineering drawings also available on AutoCad-compatible disks. 914/452-5500. KDI Paragon, Inc., LaGrangeville, N.Y. **CIRCLE 268**

Contract window treatments

Both Levolor and LouverDrape lines are included in a 28-page catalog. Track, tilt controls, brackets, and other hardware meet the heavy-use requirements of contract and institutional environments. Designers' sample program available for all window treatments. 800/221-6803. Levolor Home Fashions Contract Division, High Point, N.C. **CIRCLE 269**

Cross-platform program

A brochure on MiniCAD 7 describes the most recent upgrade of MiniCAD, said to "bridge the gap" between CAD professionals operating on Windows platforms, and those using Macintosh systems. The 2D/3D software provides features such as high-quality renderings and solids modeling for under $1,000. 410/290-5114. Diehl Graphsoft, Inc., Columbia, Md. **CIRCLE 270**

Decorative ceiling panels

Cirrus Themes acoustic-ceiling panels have new designs, "Things that Fly"—airplanes, birds, party balloons, kites, and hot-air balloons carved into the tile surface. Suggested applications include pediatric facilities, daycare settings, and children's specialty shops. 800/448-1405. Armstrong World Industries, Inc., Lancaster, Pa. **CIRCLE 271**

Fire and smoke seals

Zero's Fire and Smoke Protection catalog explains how Intumet seals protect door openings from penetration by heat, flames, and smoke. Materials activate at low temperatures, and expand with a controlled force that seals the gaps but will not force open the door. Other gasket and seal systems are intended to block sound, light, and air infiltration/exfiltration at door openings. 800/635-5335. Zero International, Bronx, N.Y. **CIRCLE 272**

Wood-window guide

A new Web site offers product and selection advice on this maker's windows and doors, as well as custom designs and finishes: www.kolbe-kolbe.com (Web page). 800/955-8177. Kolbe & Kolbe Millwork Co., Inc., Wausau, Wis. **CIRCLE 273**

Wood-frame block windows

Glass-block windows are preassembled within an all-metal, wood, or wood-clad frame, ready for installation. A catalog page illustrates all standard frame dimensions; custom frame colors may be specified. 541/389-5033. Pacific Accent, Bend, Ore. **CIRCLE 274**



PRODUCT LITERATURE

Stone and tile installation

Mapei's setting-materials catalog contains 16 pages on hydraulic mortars, self-levelling underlayments, polymer-modified grouts, and other products intended to insure long-term performance of tile and stone walls and floors. Specification data is also available in electronic format. 800/992-6273. Mapei Corp., Garland, Texas. **CIRCLE 275**

Solar window screening

A 12-page Sol-R-shade catalog tells how the company's fiberglass shades anticipate solar geometry with a cut-off angle that emulates the shading edges provided by exterior overhangs or awnings. Shades offer a view out while lessening glare on computer monitors; recessed mounting configuration encourages air flow that dissipates heat away from window glass. 800/433-4546. DFB Sales, Inc., Long Island City, N.Y. **CIRCLE 276**

Acoustical panels

Illbruck makes a line of panels, ceiling tiles, and baffles that can help control noise and unwanted reverberation in any type of interior space. A 12-page catalog illustrates Contour sculptured patterns, Fabrix textured-surface panels, and AcoustiROC grid-mounted tiles for high-traffic areas. 800/225-1920. Illbruck Architectural Products, Minneapolis. **CIRCLE 277**

Water-management EIFS

A recently updated guide offers industry-standard details for the correct installation of drainable exterior insulation and finish systems, intended to meet specific code requirements and to help reduce risk of moisture damage to sheathing. 800/494-EIFS. EIFS Industry Members Assn., Yakima, Wash. **CIRCLE 278**

Spray-on noise control

A brochure on K-13 describes the flame-resistive, acoustic, and thermal properties of cellulosic ceiling insulation, which can be made in different densities and colors to meet specific noise-control, impact-resistant, and visual requirements. 713/433-6701. International Cellulose, Inc., Houston. **CIRCLE 279**

Accordion-fold doors

A 12-page catalog illustrates partitions in a variety of commercial, educational, and residential settings; drawings detail jamb and framing requirements. Panels may be specified in wood, vinyl, or clear acrylic, framed in aluminum. 503/357-7181. Woodfold-Marco Mfg., Inc., Forest Grove, Ore. **CIRCLE 280**



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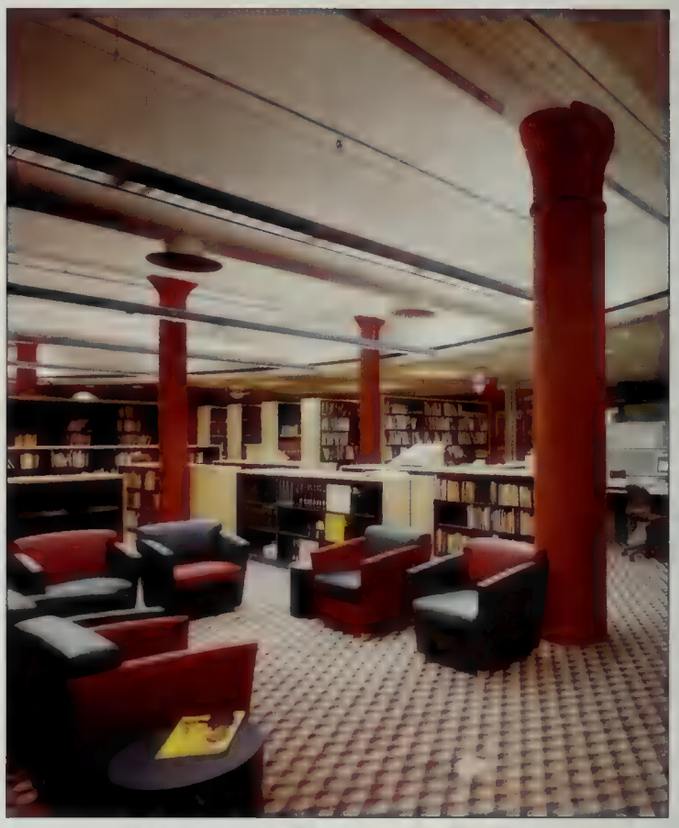
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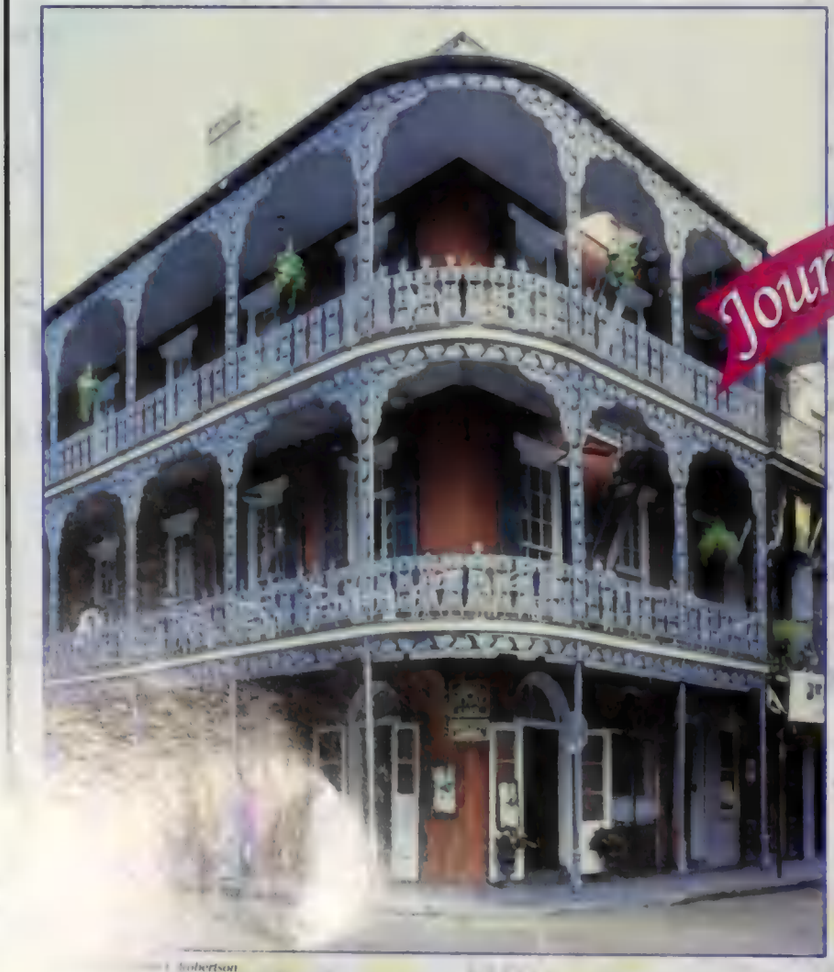


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PRODUCTLITERATURE

Tile-specification guide

This 1997 Ceramic Tile Specifier has installation and product photographs, design ideas, and technical information on all floor and wall products. A distributors' list locates local sources. United States Ceramic Tile Co., East Sparta, Ohio. **CIRCLE 281**

Sun-screen system

An architect's guide illustrates woven, see-through shadecloths in sophisticated installations. Products include manually operated MechoShades and Electroshades, for large glass areas such as lobbies and atria. Control options include a new group/master device that lowers shades to any of four positions; all shades can be automatically lowered to identical positions. 800/899-8081. MechoShade Systems, Inc., Long Island City, N.Y. **CIRCLE 282**

Playground planner

Written for school and park officials and their designers, a 16-page pocket guide has advice on describing the sponsor's ideal playground, analyzing the site, preparing a plan, and choosing play equipment that meet the project's specific criteria. 800/328-0035. Landscape Structures, Inc., Delano, Minn. **CIRCLE 283**

Resilient flooring

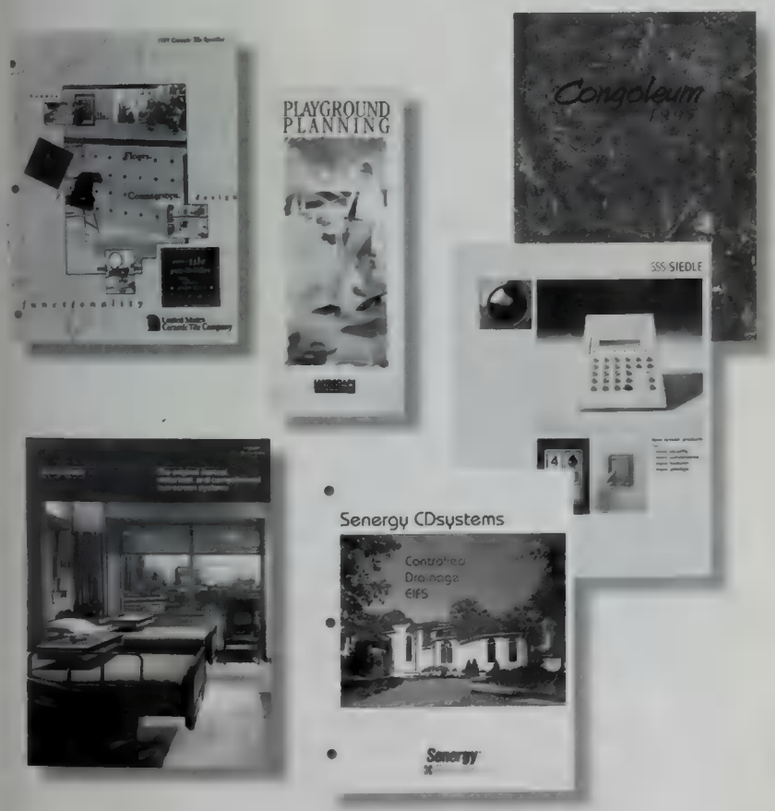
A 104-page Design Book illustrates all Congoleum residential and contract floor patterns, with photography that includes room vignettes and product close-ups. An Architects Portfolio samples all commercial sheet and tile products. 609/584-3000. Congoleum Corp., Mercerville, N.J. **CIRCLE 284**

Entry security/communication

New features of this line of German access-control devices: hammer-resistant camera lens, a film record of callers, and a new color range for units. 610/353-9595. Siedle Communications Systems of America, Inc., Broomall, Pa. **CIRCLE 285**

Code-evaluated EIFS

A report from SBCCI lists the Senerflex CDsystem and the QR-CDsystem as meeting the revised building-code requirements for Type VI construction in North Carolina. These two Senergy exteriors create an unobstructed drainage plane that removes incidental moisture from the system. Fax: 401/941-7480. Senergy Division, Harris Specialty Chemicals, Inc., Cranston, R.I. **CIRCLE 286**



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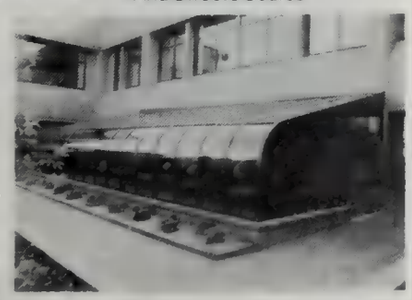
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CIRCLE 88 ON INQUIRY CARD

LITERATURE

Customizable unit kitchens

A 12-page color catalog covers custom features, including more-contemporary cabinet styles (in widths of up to 120-in.) new finish options, and decorative porcelain countertops. Efficiency-style kitchens are said to be easy to integrate into new or renovated facilities such as military housing, motel rooms, and assisted-living centers. 800/348-8508. Dwyer Products Corp., Michigan City, Ind. **CIRCLE 287**

Composite floor systems

A combination of poured-in-place concrete with proprietary steel joists, the Hambro system creates floors with clear spans of up to 50 ft. Described as a rigid and simple design that saves on both concrete and reinforcing steel, the system is applicable to all types of framing. A brochure shows installation step-by-step, and gives acoustic and fire ratings. 305/772-0440. Canam Hambro, Fort Lauderdale, Fla. **CIRCLE 288**

Translucent structures

Skywall's latest architectural brochure illustrates recent projects using this engineered skylight and wall system, including airport terminals, ballparks, and hospitals. 800/259-7941. Skywall Translucent Systems, Terrell, Texas. **CIRCLE 289**

Multimedia stone selection

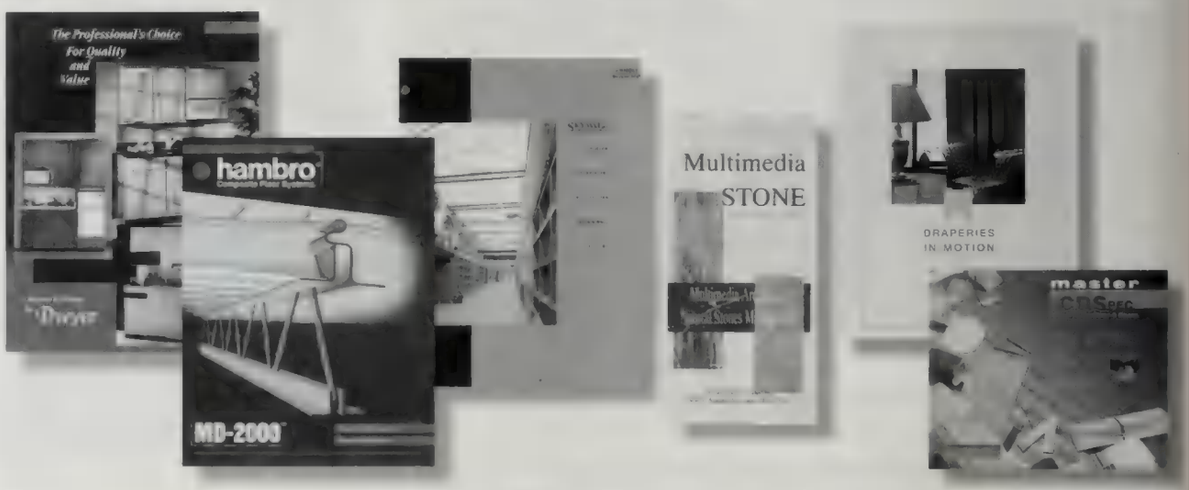
A booklet describes Studio Marmo's CD-ROM catalog, based on the well reproduced photography of natural stones found in their printed stone-selection volumes. Built to run under Windows software such as AutoCAD, the disk supplies images of 400 different granites, marbles, travertines, and limestones from quarries world-wide. Images can be exported to CAD drawings; technical data such as compression strength and impact-test results given for each stone. To order, fax 718/491-1359. Studio Marmo USA, Brooklyn, N.Y. **CIRCLE 290**

Drapery motors and controls

Somfy's brochure highlights compact motors engineered to open and close draperies either as original equipment or retrofitted to existing cord-operated window treatments. 609/395-1300. Somfy Systems, Inc., Cranbury, N.J. **CIRCLE 291**

Concrete admixtures and more

Products from CSI Divisions 2, 3, 4, 7, and 9 are referenced on Master CDSpec, a Windows-compatible CD-ROM, as well as at www.masterbuilders.com (web page). Includes photos, installation guidelines, and technical data. Faxline: 888/628-4329. Master Builders, Inc., Cleveland. **CIRCLE 292** ■



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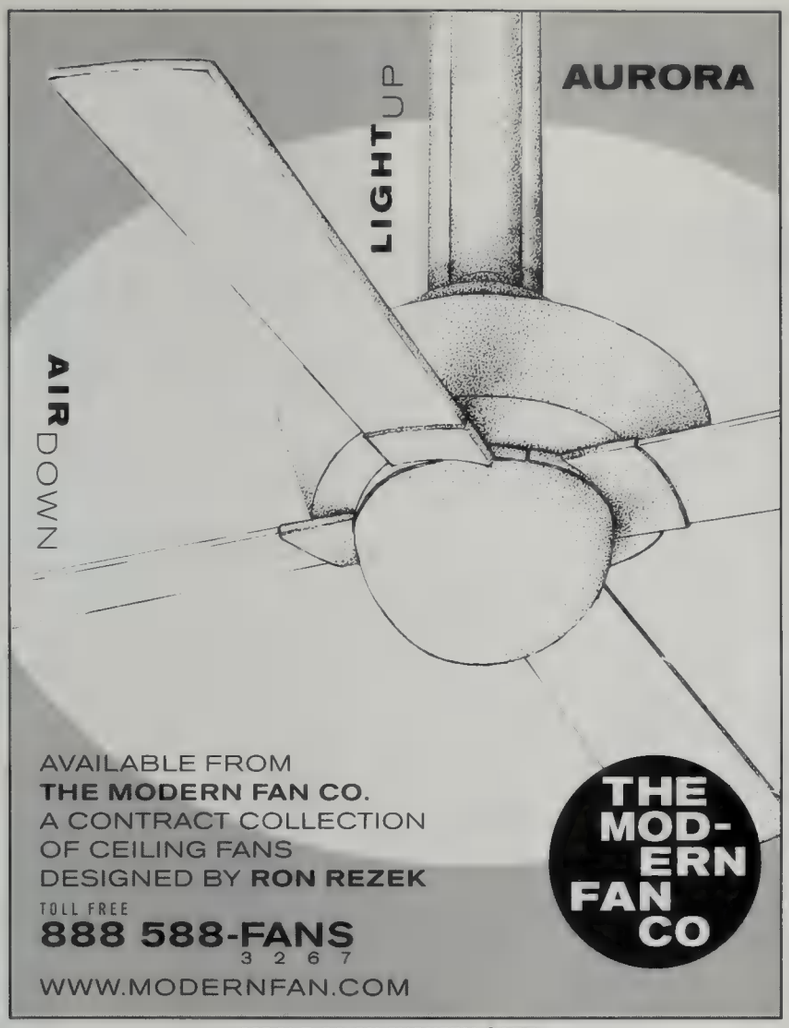
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CIRCLE 90 ON INQUIRY CARD



CIRCLE 91 ON INQUIRY CARD

Calendar

May 16–18
Ernest N. Morial Convention Center
New Orleans, Louisiana
The annual AIA National Convention and Expo, themed "Practice and Prosperity: Serving Client and Community," is expected to draw over 10,000 architects, allied designers, and construction professionals to seminars, business sessions, and exhibits. More than 400 companies will offer their latest products. Architects may earn up to 36 AIA Learning Units. For information or to register, call 202/626-7395.

May 16–September 2
Montreal Museum of Decorative Arts
Montreal, Quebec
With more than 200 objects from around the world, "Designed for Delight: Alternative Aspects of Twentieth-Century Decorative Arts" attempts to document "the diverse aesthetics, beyond functionalism and rationalism, that have informed and designed modern design." The inaugural exhibition in the museum's new building, designed by Frank O. Gehry & Associates, will travel to cities in North America and Europe. Call 514/259-2575.

May 17–20
Jacob Javits Center
New York City
Designers, manufacturers, and representatives of furniture, lighting, textiles, and wall and floor coverings will present their wares at the International Contemporary Furniture Fair. Call 800/272-SHOW.

Through June 1
Chicago Athenaeum: Museum of Architecture and Design
The exhibition "Alvar Aalto's Viipuri Library: Masterpiece of Finnish Architecture and Functionalism" is presented as part of an international effort to raise funds for the restoration of the 72-year-old library. Call 312/251-0175.

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Through June 3
Museum of Modern Art
New York City
Loosely based on Philip Johnson's Glass House, "Projects: Rirkrit Tiravanija," is a site-specific installation in the museum's sculpture garden, a child-sized model of an International Style pavilion—an open-air classroom for school children and families. Call 212/708-9400 or Fax 212/708-9889.

June 5–8
Downtown DoubleTree Hotel
Tulsa, Oklahoma
Continuing its focus on "great buildings and great cities" begun in Phoenix this spring, the AIA Committee on Design will focus on Goff, Wright, and the Art Deco core of Tulsa. The committee theme is "The Case for Quality: The Public/Private Partnership." Call 800/242-3837.

June 9–11
Merchandise Mart, Chicago
NeoCon 97, the annual contract furniture trade show, includes an emphasis on products for hospitality applications. For registration and seminar information, call 800/677-6278.

June 12–13
Renaissance Washington Hotel
Washington, D.C.
The requirements of access laws in existing buildings and new construction will be discussed at the Universal Accessibility Conference, sponsored by the AIA and the U.S. Architectural and Transportation Barriers Compliance Board. For panel topics and registration information, call 301/694-5243 or fax 301/694-5124.

Through June 15
Palladian Basilica
Vicenza, Italy
Work by Norwegian Modernist and 1997 Pritzker Prize winner Sverre Fehn is presented in an installation designed by the architect. Call 39/444-221-111 or fax 39/444 544-762.

June 16–19
Pennsylvania Convention Center
Philadelphia
A/E/C Systems 97, billed as the largest computer show for design and construction, will be held in conjunction with Construction Technology 97 and other related industry events. Call 800/451-1196 or 610/458-7689, fax 610/458-7171, or visit http://www.aecsystems.com.

June 17–September 28
Canadian Center for Architecture
Montreal, Quebec
The CCA will explore the myths underlying a cultural phenomenon with "The Architecture of Reassurance: Designing the Disney Theme Parks." Call 514/939-7000.

June 24–October 19
Cooper-Hewitt
New York City
"Do-It-Yourself Architecture for the Great Outdoors" will offer a look at the advanced materials and the innovative tectonics of tent design; 10 commercially available tents will form an "urban campsite setting" on the museum's grounds. Call 212/860-6868 or visit http://www.si.edu/ndm/.

June 26–29
Orange County Convention Center
Orlando, Florida
The Construction Specifications Institute has announced its 41st annual convention and exhibition. For registration and exhibitor information, call 800/689-2900.

June 26–29
Sea Ranch, California
This summer study tour of Sea Ranch is titled "Freehand Analysis Sketching." The fee is $440 (accommodations extra). Contact Landscape Architecture Program, UCLA Extension, 10995 Le Conte Avenue, Room 414, Los Angeles, California 90024, call 310/825-9414, or visit http://www.unex.ucla.edu.

Through June 29
Museum of Contemporary Art
Barcelona, Spain
"Josep Lluis Sert: Architect in New York" chronicles the Spaniard's first years in exile (1939 to the mid-1950's), his architecture and town planning projects, and collaborative efforts with artists including Calder and Leger. Call 34/3 412-0810 or fax 34/3 412-4602.

July 16–September 21
Bard Graduate Center of Design
New York City
A two-part exhibition, "Masterworks of Italian Design, 1960–1994," highlights contrasts between Modernism and Post-Modern design during the period. Call 212/501-3000.
(continued on page 264)

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(**Essay** *continued from page 81*)
independently continued to win awards for projects at the development into the 90's, a decade that saw Seaside, Fla., emerge, winning three awards in one year.

The 1960's ended with Richard Meier's first award, for his Smith House. Over 28 years, Meier, the current gold medalist, has won 11 awards. The Modern worm began to turn in the 70's, even though I.M. Pei and Partners won three awards in 1974. Michael Graves won an award in 1975 for the Hanselmann Residence, the Corbusian forms of which provided no clue to Graves's future role as one of the fathers of Postmodernism.

Two years later the firm of Venturi and Rauch appeared on the awards scene, although Philadelphia's Franklin Court also little foretold the emergence of such seminal concepts as the decorated shed. And keep in mind the fact that Robert Venturi's *Complexity and Contradiction in Architecture* had rocked the cognoscenti a full 10 years before.

This is just one example of how the AIA Honor Awards program does eventually catch up with the best of the current isms, though it rarely catches them at their flood. Frank Gehry's proto-deconstructionist design for his Santa Monica residence went against the tide by winning an Honor Award when it was first submitted in 1980, but that was because it was entered under the Extended Use category. Insiders were convinced at the time that the house never would have won in the straight-laced Current Use category. Extended Use was later dropped, arguably because too many avante garde projects crept in or because those winners wanted to be seen as "mainstream."

The 80's also saw awards go to structures that solved environmental concerns with powerful artistry. These included Fay Jones's Thorncrown Chapel, Robert Frankberts' Phoenix Lath House and SOM's tented Haj Terminal in Jeddah. All three so surpassed the idea of elemental shelter as to near the sublime.

With the belt tightening of the early 1990's came the return of a Modern esthetic, albeit a neo version that was neither as virginal nor as pure as its inspiration. An industrial esthetic has remained compelling to jurors since the beginning, evidenced by interior awards this year for an advertising agency (Meyocks and Priebe) and a distribution center (Praxair), both designed by the Des Moines, Iowa, firm of Herbert Lewis Kruse Blunck Architecture. The interior award for a Bottega Veneta store (Francois deMenil with Bergmeyer Associates) welcomed unadulterated neo-Miesian Modernism, an indicator of the new respect for Minimalism—excess is unfashionable again.

While it visually resembles the style maturing at the inception of the design awards, today's Modernism is less optimistic and has a less-idealistic agenda for social change. On the other hand, architects are increasingly accepting the need for conservation of energy, resources, and expenditures. We are still searching for a moral and ethical means to practice and for practice methods that contribute to societal advancement. The question today is to what extent the Honor Awards need to reflect these concerns. The Institute has again convened an Honors and Awards Task Force to evaluate the program. The Honor Awards may no longer enjoy special status, but may be lumped with all other institutional honors, seemingly leveling the playing field. The potential for diluting the message of the awards is real. Recognizing all the players that make architectural greatness possible is a laudable goal as long as we do not lose sight of (as the *Random House Dictionary* defines it) "the profession of designing . . . artificial constructions and environments usually with some regard to esthetic effect." ■

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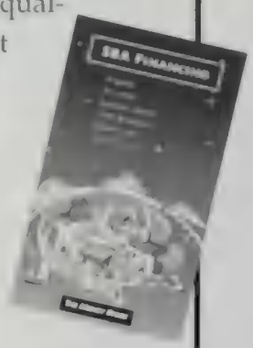
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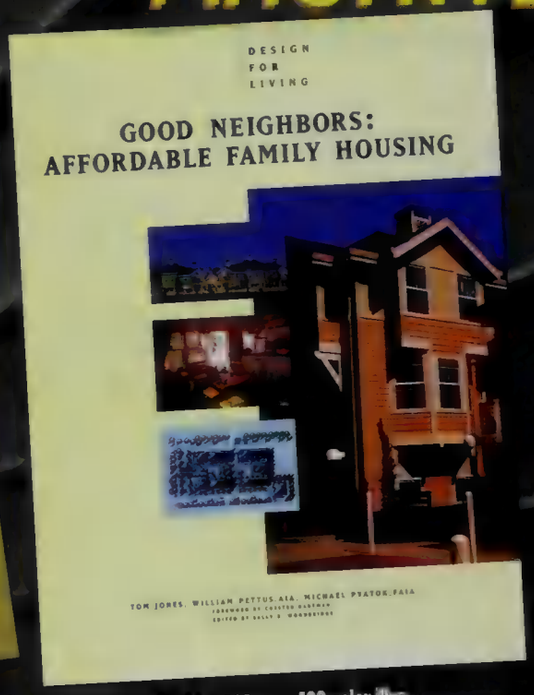
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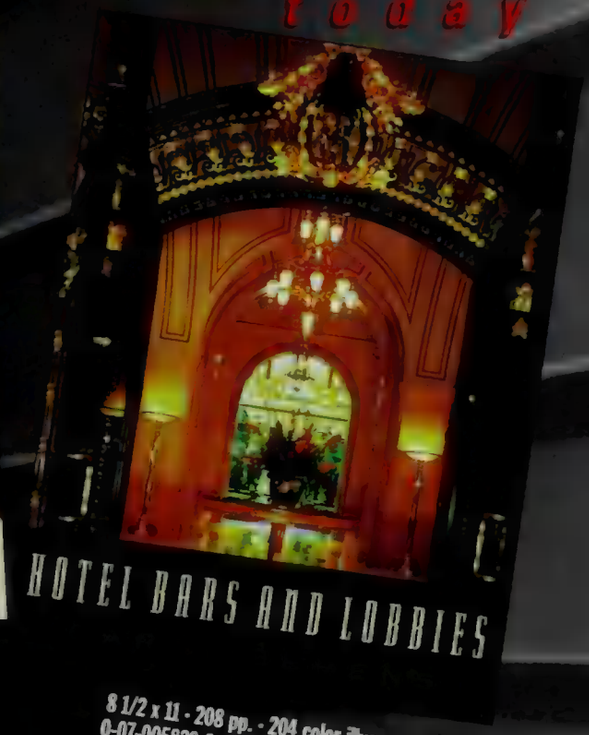
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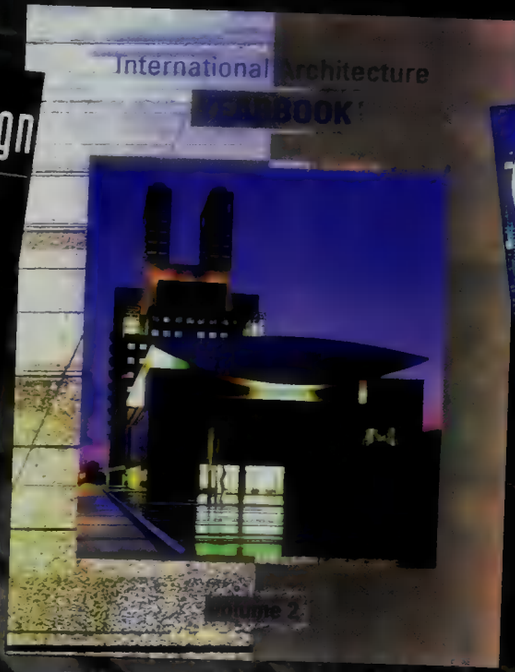


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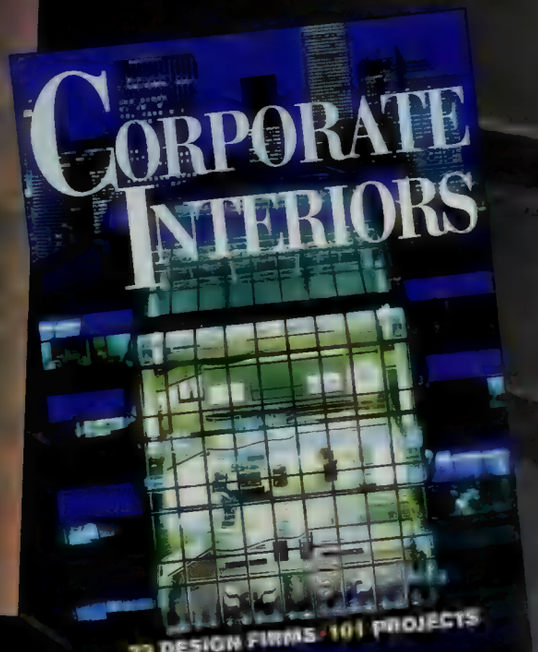


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(continued from page 260)

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The Fourth Annual Diversity Conference unites architects, designers, students, educators, AIA leaders, and allied professionals in an exercise to expand mutual understanding, explore cultural issues, and activate an appreciation of diversity in the people and policies of the AIA and the profession. Contact 800/242-3837.

Summer 1997

Harvard Graduate School of Design

Cambridge, Massachusetts

Harvard's GSD is offering professional development courses in architecture, from mid-June through mid-August. The program, which is registered with the AIA Continuing Education System (AIA/CES) and meets criteria for Level 3 learning units, includes courses on environmental sustainability, public-school planning and design, marketing strategies, and mid-sized firm management. Contact Office of External Relations, GSD, Harvard University, 48 Quincy Street, Cambridge, Massachusetts 02138; call 617/495-1680, fax 617/495-5967, or e-mail: pd@gsd.harvard.edu.

Competitions

The Boston Society of Architects invites entries in two awards programs: the **Urban Design Awards Program**, which recognizes excellence in urban design and planning by Massachusetts architects and architects worldwide who have built work in the state (submission deadline: May 22); and **Unbuilt Architecture**, an annual program open to practitioners, educators, and students (submissions due: August 21). Submit entries to the attention of the program at Boston Society of Architects, 52 Broad St., Boston, MA 02109-4301. Queries on either program, call 617/951-1433 ext. 232.

Portland has issued a call for entries in its awards program, **Architecture + Energy: Building Excellence in the Northwest**. Recognition will be given for design excellence in buildings that integrate energy-efficient technology. The program is open to nonresidential buildings in Idaho, Montana, Oregon, and Washington. Sponsors are Portland General Electric and the Bonneville Power Administration. The deadline is May 30. To request an entry packet, contact AIA/Portland, 315 S.W. Fourth Avenue, Portland, Oregon 60544. For information, call 815/436-7093.

Toward a More Perfect Union: An International Design Competition for the Future of Union Square "aims to generate innovative urban design concepts that are inviting to a wide range of users and that will make Union Square the renewed focal point for San Francisco's retail core." The jury will award $10,000 in prizes and the City of San Francisco, which intends to renovate the square, will interview the winners for retention as part of a design team. The deadline for submissions is July 7. Send requests for entry by June 6 to The San Francisco Prize, c/o SPUR, 312 Sutter Street, Suite 500, San Francisco, California 94108 (include a check for $20 payable to the San Francisco Prize). For technical questions, contact Evan Rose, Competition Project Manager, San Francisco Planning Department at 415/558-6291, fax 415/558-6426, or e-mail: Evan_Rose@ci.sf.ca.us.

The Chicago Athenaeum: Museum of Architecture and Design invites designers and manufacturers to submit industrial and graphic design projects, including office furniture, housewares, and lighting, to **GOOD DESIGN® 1997**. The deadline for this international competition is July 1. Winning submissions will be exhibited at the museum this fall and installed in the permanent collection. Entry forms are available from the Athenaeum at 312/251-0175, fax 312/251-0176, or visit http://www.chi-athenaeum.org/.

The Young Architects Group of the AIA New York Chapter, the Van Alen Institute, and the Hudson River Park Conservancy are sponsoring a **design competition for a sunshade structure** on a pier at 13th Street in Manhattan, as an interim improvement within the context of the Conservancy's current waterfront development plans. The registration deadline is July 31 and entries are due September 2. Call 212/683-0023, ext. 23. The MIT School of *(continued on page 266)*

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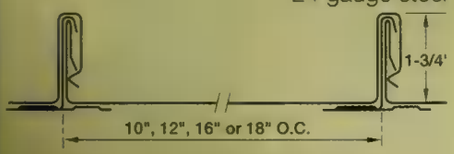
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CIRCLE 16 ON INQUIRY CARD

(continued from page 264) Architecture and Planning announces the 6th biennial **Lawrence B. Anderson Award**. The $12,500 award is given in "support of creative documentation as a valuable form of learning." Eligibility requirements include a professional-level degree and/or a recognized contribution to the built environment and full-time residence at the school for a two-year period. The application deadline is July 31. For information, contact Office of the Dean, School of Architecture and Planning, MIT, 77 Massachusetts Avenue, 7-231, Cambridge, Massachusetts 02139, or call 617/253-4401, fax 617/253-9417, e-mail: peggym@mit.edu.

The **Shinkenchiku Residential Design Competition 1997**, an annual competition sponsored by *The Japan Architect*, will be judged by Swiss architect Jacques Herzog of Herzog & de Meuron. The theme is "House of Collaboration." Entrants are asked to work in collaboration with an artist or art student to draw an exhibition space for contemporary art for any site. Use two sheets of paper; no electronic media. For entry requirements, contact Tomoko Ochiai, Editor, *The Japan Architect*, at fax 81/3-3811-0243. Entries must be received by September 10, 1997.

Reviews

Goff on Goff: Conversations and Lectures, *edited and with an introduction by Philip B. Welch. Norman, Okla.: University of Oklahoma, 1996, 352 pages, $29.*

A Quest for Life, *by Ian L. McHarg. New York: John Wiley & Sons, 1996, 446 pages, $35.*

An Architectural Life: Memoirs and Memories of Charles W. Moore, *written and edited by Kevin P. Keim. Boston: Bulfinch Press/Little, Brown, 1996, 302 pages, $50.*

Reviewed by Nancy Levinson

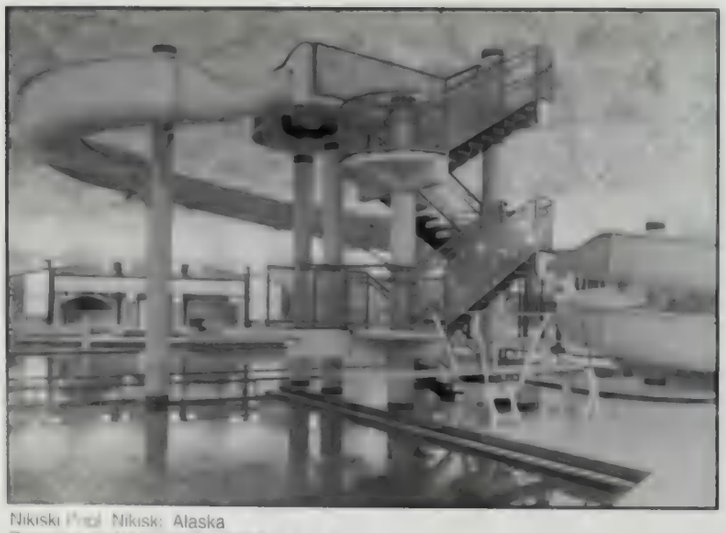
The lives and works of three mavericks of mid-20th-century design education, and practice, Bruce Goff, Ian McHarg, and Charles Moore, are presented in a new volume of collected lectures, an autobiography, and a biography. Also presented to varying degrees in these books is evidence of some of the shortcomings of late-20th-century design publishing.

On the record: an Oklahoma prodigy

Goff on Goff is a series of transcripts of the architect's lectures and conversations, most recorded in 1953 and 1954 at the University of Oklahoma, where Goff chaired the School of Architecture. The book's editor, Philip Welch, a colleague of Goff's at Oklahoma, has chosen to present this material straight. Only a brief introduction, long on personal memories and short on biographical fact and historical perspective, serves to locate Goff in place and time.

Welch emphasizes, in fact, that there will be "no interpretation of [Goff's] philosophy"—no critical friction, as it were, between speaker and reader. Such remarkable editorial reticence would have been justified had the material been the timeless treasure the editor believed it to be; but the lectures are, rather, a fascinating anachronism.

Born in 1904, Goff was an architectural prodigy who began working in a Tulsa office at age 12 and who, by age 21, had a dozen constructed projects to his credit. He reached artistic maturity in the 1940's and 50's, designing in those years a series of extremely original houses notable for their vigorous and often brilliant explorations of different geometries and for their use of such unexpected materials as feathers, chunks of anthracite, and parts of scrapped B-17s. *(continued on page 270)*


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(continued from page 266) What is most striking about these lectures is how thoroughly they are a product of their period. "The New and Different in Architecture," "Honesty in Architecture," "The New Geometry in Architecture," "Advancing Architecture"—such titles suggest a catalogue of some of the themes and topics that engaged architects during America's wildly prosperous and willfully optimistic postwar era. Evident throughout these lectures is a confidence in the influence and efficacy of architecture and the architect, or, in Goff's unfussy and slightly ungainly syntax, "in knowing that it is possible to do right now potentially almost anything that we can think of."

Such confidence has all but vanished in our own more self-consciously complicated time. Welch describes Bruce Goff as a dedicated and compelling teacher, and these intelligent lectures contain many sophisticated and insightful passages on diverse matters, including the architecture of Wright, Gaudí, and Mies, the music of Debussy and Schoenberg, and the training and obligations of the artist.

But to read these lectures four decades later is to realize again the truth of the widespread conviction that sometime in the past quarter century there began a new era. Whatever this era will eventually be labeled—"postmodernity" now being the favored term—it has made a great deal of the not-so-distant past seem deeply out of date. Or, put another way, this book seems to me to possess not lasting but historical value. This is not a very harsh judgment of Goff; very little of what is spoken or written outlasts its occasion.

Bruce Goff would have been better served by editor and publisher had these lectures been supported by a more ambitious editorial context. Such a context might have included a major essay on Goff's methods and influence as a teacher, as well as on his life and work. And a larger context should certainly have featured better images of Goff's work than the small, grainy photos reproduced here. This last, in fact, seems especially important; for if Bruce Goff's words remain rooted in their time, his buildings look more amazing than ever.

From Glasgow to Penn: Ian McHarg

Ian McHarg, born in 1920 and now professor emeritus at the University of Pennsylvania, served recently as the Bruce Goff Professor at the University of Oklahoma. We learn much [illegible] architect and [illegible] *Quest for Life*. [illegible] McHarg recounts the major episodes of his life in straightforward style, describing his lower-middle-class boyhood in Depression-era Glasgow, his meritorious army service during the Second World War, postwar study of landscape architecture and city planning at Harvard, three decades as founding chair of Penn's prestigious landscape architecture department, partnership in the firm Wallace, McHarg, Roberts and Todd (now Wallace Roberts and Todd), and, most important of all, his major role in the environmental movement of the 1960's, during which he wrote the influential book *Design with Nature*.

Ian McHarg emerges from these pages as an intelligent, idealistic, and passionate man of large ambition and broad achievement. This is nonetheless a flawed book. While acknowledging at the outset the pitfalls of autobiography—"the necessary repetition of 'I' groans with immodesty"—this autobiographer has not entirely resisted the seductions of the genre. "Autobiography is an unrivaled vehicle for telling the truth about other people," the British writer Philip Guedella once said; and indeed, from every encounter described here, whether with army brass, Harvard faculty, or highway engineers, the author comes through victorious, with the best lines or the last word.

And while McHarg writes with verve and feeling about his Scottish boyhood and European tour of duty, he seems oddly content, when discussing his prolific American career, simply to elongate his curriculum vitae into paragraphs and chapters.

No one else really comes to life in these pages, which is particularly disappointing, given the range of the author's experience. Not only has McHarg known, as student, colleague, or teacher, many of the best and most influential landscape architects of the past half century; he has also, as part of his crusade to enrich the discipline of landscape architecture with knowledge from other fields—ecology, of course, but also anthropology, biology, theology, and literature—known such distinguished figures as Lewis Mumford, Loren Eiseley, René Dubos, Margaret Mead, Erich Fromm, Howard Nemerov, and Paul Tillich.

But rarely do these men and women make more than anecdotal, *Who's Who*-like appearances here. The engaging candor and narrative detail that enliven the early chapters on the author's youth all but vanish in the chapters on his professional life. Probably this latter material—dealing with colleagues, collaborators, and rivals, many of whom are still practicing—posed more sensitive authorial dilemmas. And in this regard I am *not* implying that what is needed is dirt or dish—that McHarg or any memoirist should indulge in the popular practice of training a laser on the frailties of the famous. I am suggesting that the author has not written the better and more ambitious book that lurks in these pages.

To judge from how often McHarg rhetorically reaffirms the importance of ecological knowledge, he intended to explore in some measure how recent landscape practice and teaching have—and have not—made use of this learning. But this critique doesn't quite come off; what we have instead, for too much of the book, is the dutiful description of projects and personnel. This is regrettable, given the author's extraordinary access and well-earned authority.

A posthumous life of Charles Moore

Charles Moore did not live to complete his own memoirs. At his death in 1993 at age 68 he was working, with Kevin Keim, on what has become *An Architectural Life*.

Much about Moore's architectural life will be familiar to anyone who has even casually followed recent architectural culture. After receiving his Ph.D. from Princeton University in the late 1950's (missing there his fellow Postmodern traveler, Robert Venturi, by several years), Moore embarked on a four-decade career remarkable for its range of associations and activities. He taught at Princeton, Berkeley, Utah, Yale, UCLA, and Texas; founded such diverse and productive offices as MLTW, Moore Grover Harper (now Centerbrook), Moore Ruble Yudell, and Moore/Andersson Architects; and wrote influential articles and books, including *Body, Memory, and Architecture* (with Kent Bloomer) and *The Place of Houses* (with Donlyn Lyndon and Gerald Allen).

Making possible this intense and nonstop schedule was intense and nonstop travel. Moore was famously on the go, usually balancing projects and teaching and writing in several places at once. Merely to *read* about a typical Moore week—jam-packed with working sessions on the red-eye, desperate but ultimately creative charrettes, lengthy and convivial dinner parties, never-ending phones and faxes—is to be torn between envy and exhaustion.

As its exceedingly equivocal title suggests, this is not a full-fledged biography. Rather, it is an extended but protectively restricted glimpse into Moore's life and career. As such, it seems to me a limited achievement, not disrespectable, but simply too unambitious to matter much. The book has been as much assembled as written, and many of the *(continued on page 272)*

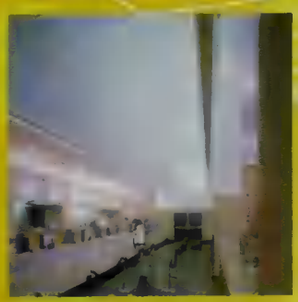
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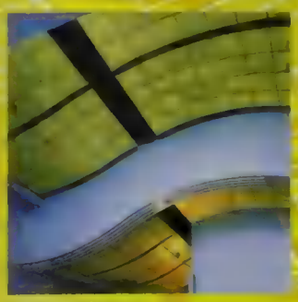
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(continued from page 270) best parts are excerpts from Moore's writings and recollections from colleagues such as Lyndon, Bloomer, William Turnbull, Lawrence Halprin, and Mark Simon.

The author/editor justifies the decision to produce an *architectural* life, as opposed to a life, by arguing that Charles Moore's professional life *was* his personal life. Well, maybe; but in that case the literary result might have been a full-blooded, forthright study of Moore's career and the eventful period in which he practiced.

But *An Architectural Life* does not display much authority about either the architectural or American scene. You don't need to have lived through the 1950's to perceive the callow confusion in this attempt to encapsulate the decade: "It was a time of sober slogans such as 'I Like Ike' and 'Less is More.'" And if there is little historical understanding here, there is even less critical perspective. The author is disinclined to explore the contours of Moore's long career, the entirety of which is treated as a continuous, unvarying success. Sea Ranch and the Piazza d'Italia, the inventive wood houses from the 60's and the painted PoMo projects of the 80's—it's all pretty much the same here. This indiscriminate affection makes the book seem like a mix of eulogy and press release.

The shortcomings described above might be understood simply as the limitations of three specific books. But they might also be understood as symptomatic of some of the larger shortcomings of design publishing today.

Although book shops are full of oversized monographs, well-produced anthologies on cities and landscapes, book-like magazines and magazine-like books, design publishing has been enduring lately a crisis of confidence. Publishing economics—never excessively reassuring—have become increasingly precarious, for reasons ranging from competition from TV, movies, and now the Internet, to the growing obsession with the mega-major bestseller at the expense of the merely profitable book.

The case of design publishing is further complicated [illegible] the debatable but widespread [illegible] among publishers that designers [illegible] to the verbal—hence [illegible] between book [illegible] and labeling [illegible]

[illegible]

How else to explain why the author of *A Quest for Life* recalls meeting, on a hiking trip that occurred in 1930, veterans of the Spanish Civil War (which didn't start until 1936)? How else to explain why, in books about the contemporary design world, the names of so many prominent figures are misspelled or mangled? Philip Johnson, Paul Rudolph, Spiro Kostof, and Denys Lasdun are just a few of the many whose names slipped by the celebrity spellchecker in these books. And what, if not regrettable haste, accounts for the fact that in a life of Charles Moore the word *charrette* is misspelled?

Maybe these are minor matters—maybe it is a minor achievement to spell correctly or to know when the Spanish Civil War started—but these lightweight errors, so easy to catch and avoid, arouse this writer's suspicion that attention isn't being paid to weightier matters as well.

The Details of Modern Architecture, Volume 2: 1928–1988, *by Edward Ford. Cambridge, Massachusetts: MIT Press, 1996, 384 pages, $75.*

As fascinating and provocative as his first volume, which concentrated on the 19th century, Ford's final work in this two-part series focuses on "structural expression, the mechanisms for achieving it, and the models that exemplified, to Modern architects, its correct application." Although a magnifying glass is needed to read its painfully small type, the book offers a spirited perspective on the history, design, theory, and construction of 20th-century Modern architecture through the work and ideas of 15 of its leading proponents.

Glass in Architecture, *by Michael Wigginton. London/San Francisco: Phaidon/Chronicle, 1996, 320 pages, $95.*

A timely publication in light of the architectural profession's growing interest in and exploration of the structural potential of glass, this handsome volume by a British architect and educator makes for a useful, if not comprehensive, reference on glass in architecture. A survey of technologically and formally sophisticated contemporary works in North America and Europe is sandwiched between essays on the history and the technology of the 4,000-year-old material and an essay on the future. The book includes appendices—illustrated with beautifully rendered diagrams and graphs—that cover materials and performance, glass manufacturing, unconventional glass types and products, and transparent plastics.

Expressive Details, *by Duo Dickinson. New York: McGraw-Hill, 1997, 259 pages, $50.*

The fifth in a series of books by author and Connecticut architect Duo Dickinson, this survey of mostly residential, often quirky details by a variety of architects, designers, and builders, is intended to fill the gap between books devoted to "preciously self-conscious" presentation drawings and the dry, often opaque content of technical journals. The author's intention is admirable, but there are too few drawings and those included are sometimes too small and difficult to read; others, presumably due to production problems, fall partially in the gutter of the book. Divided into six categories (structure, skin/surfaces, openings, movement, millwork/minutiae, and systems/mechanical), each with approximately a dozen details shown in black-and-white photos and working drawings, the book provides some inspiration for designers.

The Elements of Style, Revised Edition, *edited by Stephen Calloway and Elizabeth Cromley. New York: Simon & Schuster, 1997, 568 pages, $70.*

Originally published in 1991, this updated and expanded "encyclopedia" documents domestic interior architectural details from 1485 to the present. It is a solid, well-organized reference tool, with more than 3,000 drawings and historic engravings, and 1,400 photographs—most reproduced exquisitely.

Omissions and Corrections

Lead architect credit for the Columbus Performing Arts Complex [RECORD, March 1997, page 35] should have gone to Hecht, Burdeshaw, Johnson, Kidd, and Clark, Inc., of Columbus, Georgia.

Due to incorrect information supplied to the magazine, the March 1997 story on NikeTown [pages 100-103] misstated the role of members of the design team. Michael Leclere of Leclere Associates should have been noted as architect-of-record, and Brain McFarland as architectural consultant to Leclere Associates.

The story on the 1997 Topaz Medallion for Excellence in Architectural Education [RECORD, April 1997, page 52] had two errors. First, the name of one of the two sponsoring organizations is the Association of Collegiate Schools of Architecture (ACSA). Also the award is given jointly by the AIA and ACSA. ■



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CIRCLE 101 ON INQUIRY CARD

(Letters continued from page 35)

become public perception that anything is possible and readily available. Hanna-Barbera has been replaced by virtual reality. Market-driven architecture is arguably becoming king.

This mass entertainment trend is right on schedule for the next millennium. Who better to build the way to Never Never Land than architects?

–Boukman Mangones
Miami, Florida

I live within 10 miles of both the Mohegan Sun [RECORD, March 1997, pages 104–109] and the Mashantucket (Western) Pequots' casinos, and have visited both buildings. At the Mohegan Sun, on-site traffic flow is confusing. I know people who have parked in the garage and had to walk halfway around it to find the casino at night. During the day, the exterior of the building makes you feel like you are approaching a factory. If not for the "tepees" at the entrances, the casino would look like a short version of the nearby Preston incinerator.

In contrast, the Mashantucket Pequots casino, to the dismay of some local residents, gives visitors a feeling of "having arrived." It is tall, bright, and huge. It also displays a tribal architecture that does not stop with the plan but extends through the walls to the building's exterior design.

If the Mohegan Sun architects were to have designed "everything the public sees," they should have considered the exterior. The interior is a beautiful surprise, if you can force yourself through the doors.

–Mark A. Pawlikoski, AIA
The Hermann Associates
Mystic, Connecticut

Public housing: grid lock

As noted in Blair Kamin's "Can Public Housing Be Reinvented?" [RECORD, February 1997, pages 84–89], there are many factors other than physical design that affect the life of communities. Integrating the other factors with appropriate physical design promotes the most satisfying communities, as architect Christine Killory and many others have noted.

In my opinion, a reintroduced or reinforced street grid, like the one proposed for Cabrini-Green, is rarely a positive component in the integration of the various factors. The kind of "discipline" it embodies is a poor substitute for the "enlightened choices" that a richer urban environment can provide. How to "enlighten" those choices and avoid "the tragedy of the commons," is not an easy process; but to simply limit the choices is a regrettable admission of defeat.

–William A. Stewart
Marble Falls, Texas

W. W. II Memorial: state of the Union

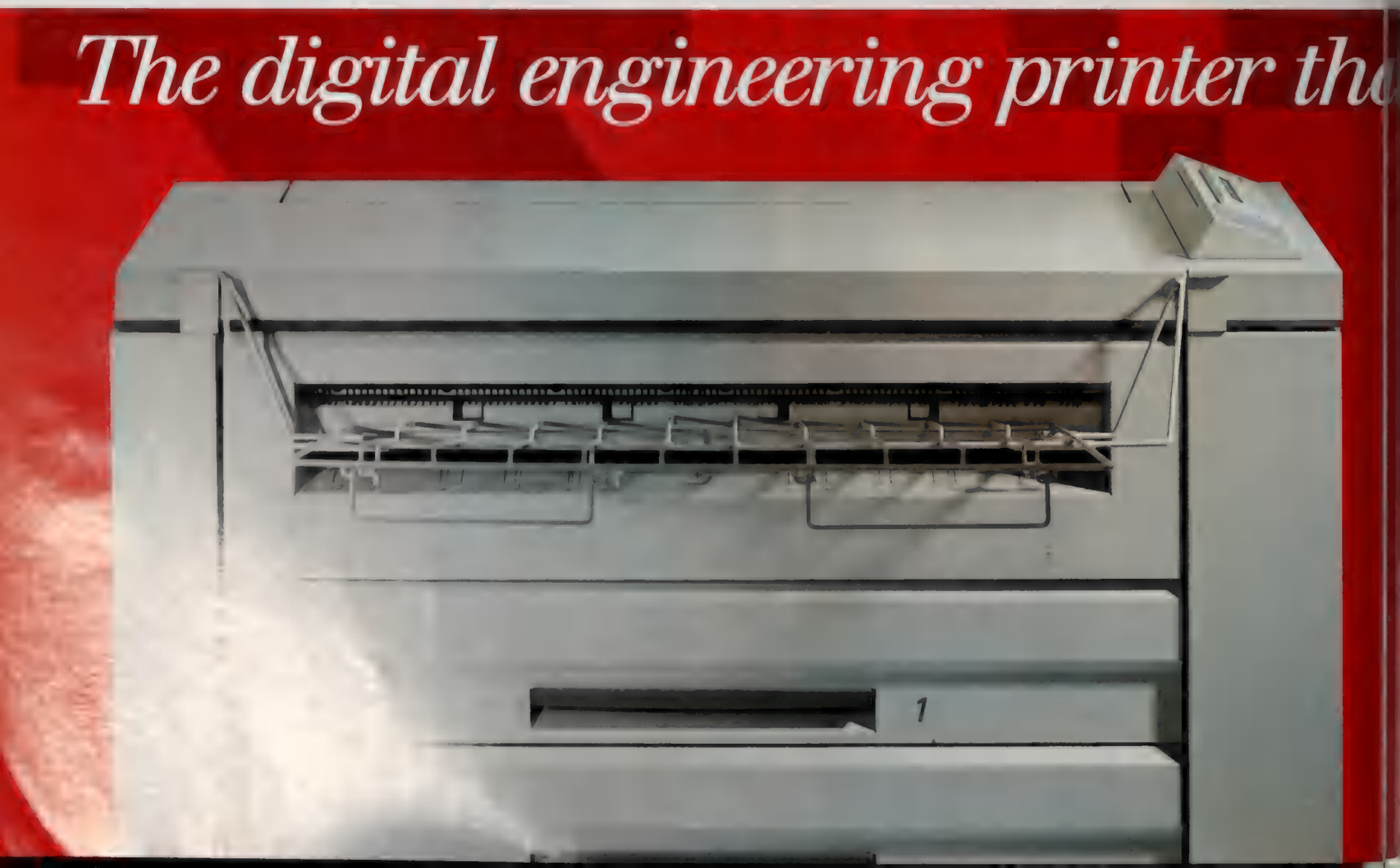
Regarding Friedrich St. Florian's expression of the "autonomy" and "collective will" of the 50 states in his design for the World War II Memorial [RECORD, March 1997, page 31], memorials communicate the builder's understanding of history to future visitors. Forty-eight states fought in the war; the number 50 is as inappropriate in commemorating W. W. II as it would be for the Revolutionary War. What history are we communicating?

–Robert W. Grzywacz, Architect
New Haven, Connecticut

Enabling interns

Bob Dillon gave a remarkable portrayal of the experience of architectural interns in *Speak Out* [RECORD, January 1997, page 28]. Your article gave me a sense of what to expect from and how to achieve the full learning potential of the Intern Development Program (IDP).

The digital engineering printer tha



However, Dillon fails to mention that the main reason interns feel frustrated by IDP is because architecture schools are not preparing them adequately for the real world. The current structure of architecture education segregates professional practice classes. In the rapidly changing world of architecture, however, schools should integrate practice into the studio to keep up with the pace of change. This would create an intensive studio-based education where students would learn to work more collaboratively with people of different expertise and experience.

The benefits of the IDP experience will be realized when a more practice-oriented studio is implemented.

–Manuel Da Silva, fifth year student
School of Architecture
Roger Williams University
Bristol, Rhode Island

Debating the boldness gap

In her comments on the "boldness gap" [RECORD, February 1997, page 16], Cathy Rogers demonstrates a familiar inferiority complex: if architects strive for the essence of the meaning of design to society, Rodgers would have us believe, they commit the crime of "snobbery and elitism" and ought to be ashamed of themselves. We are to understand, in her opinion, that designing an unprofitable building is equivalent to defending a "hallowed ground."

Cathy Rodgers delivers the crux of her homily by defining the criterion for judging the contribution of architecture to society: "The amount of repeat business a firm generates." Have we just experienced a revelation?

–Oreste Drapaca, Architect
New York City

In response to the "boldness gap" letters in your February 1997 issue, I submit that all architecture is not great and some architects don't practice as well as others: That's life. But to say that architecture must allow itself to be driven by the marketplace is to abdicate the architect's authority and responsibility to the client. This argument implies that the client is more competent than the architect to make decisions relating to architecture as a profession and a practice. Have architects become so fearful of the "pompous" label to be willing to strip architecture of its professional status and to relegate practitioners to the position of techno subcontractors to the client? Rather than cave in to market demands, perhaps architects should fight them.

Isn't one of the most impressive skills of an architect the ability to understand and meet wishes and needs in ways the client could not imagine?

–Edward J. Devine, Assoc. AIA
Rochester, New York

A better RECORD

I'm pleased to say that the quality of RECORD hit a new high with the January 1997 issue. The only complaint I would have is to echo Ulrich Franzen's comment [RECORD, February 1997, page 16] on the lack of floor plans in Steven Holl's Makuhari housing complex—too much like *Architectural Digest!*

The February issue is even better, because I found the articles to be of greater interest to me. The first two paragraphs of Bob Ivy's editorial gave the best explanation of why I, like many other architects of a contemporary persuasion, support the preservation movement. As you say, it is "part of who we are."

–Bradley R. Storrer, AIA
Alta Loma, California

Community service

Robert Ivy's December 1996 editorial [RECORD, page 9] in which he reflected on the efforts of his architect-friend's tireless vision and service to his community was heartfelt. Ivy's gratitude and editorial support of his friend's efforts

(Letters continued on page 278)

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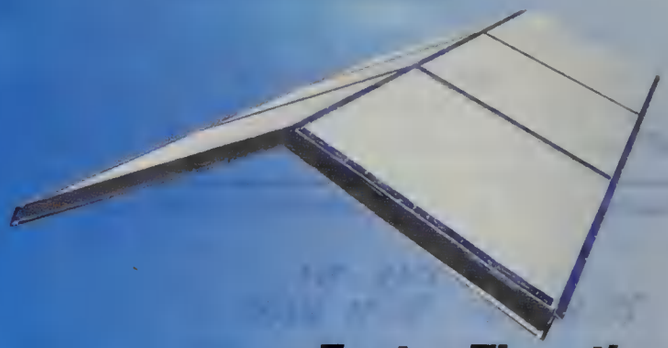
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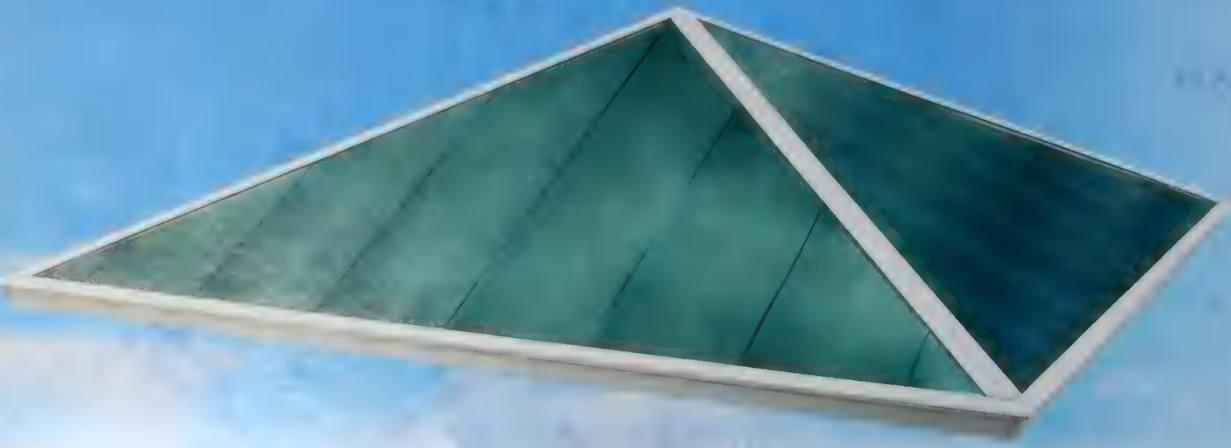
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(Letters continued from page 275)

touched on an issue that has not been explored fully by the media or the profession: community service. Years ago, while sitting in my doctor's office, I read an article in the *AMA Journal* that was a reminder to doctors that each and every one of them had a responsibility to contribute their skills and talents to their own communities. This is good advice from which many architects could learn and grow.

My own experience reveals unforeseen, career-sharpening benefits derived from serving as a board member of a science and history museum, guest teaching about design to a 5th grade class for a few semesters, and designing a playground for a homeless shelter. I've found myself sitting in rooms filled with doctors, attorneys, professors, priests, computer designers, corporate directors, bankers, and other community-minded people. Through these relationships, I've transformed the common perception of my skills, from designer of buildings to strategic thinker, creative problem-solver, planning process organizer, and overall "vision" advocate. I have also learned about organizational bylaw structures, public speaking and presentations, the political process, and organizational development. And I've also developed a key understanding of other professions that I would most likely never have had exposure to.

These are win-win situations that can accelerate and augment the traditional skills learned in the architect's office. Our professional skills and passion are needed throughout our communities in organizations that have an unfulfilled need for our vision. In most instances, I've been the sole representative of our profession and a "first contact" with a designer. Participation in our professional organization is fine, but more of us could and should contribute as individuals. Architectural offices and colleges should support and encourage community service. It would be a great idea if community service became a required component for licensure. Get involved.

–Gary Orr
ORR Design Office
Sacramento, California

More on themed architecture

While I feel disturbed by the so-called "theming of America" trend sweeping this nation, I do believe that it is real architecture [RECORD, March 1997, page 20]. America has a rich heritage of themed built environments. From Coney Island and Midway Gardens to the World's Fairs, many architects have had a hand in creating these environments. What is sad is the public's desire (real or advertiser-imposed) for more of these outrageous, controlled, glitzy places. The disturbing pattern, in my view, is that instead of supplementing our everyday environments they are becoming the replacements for real places and events.

–Jim McAuliffe, Architect
Newtown, Pennsylvania

RECORD may edit letters for grammar, style, and space availability, taking care not to change the author's meaning.

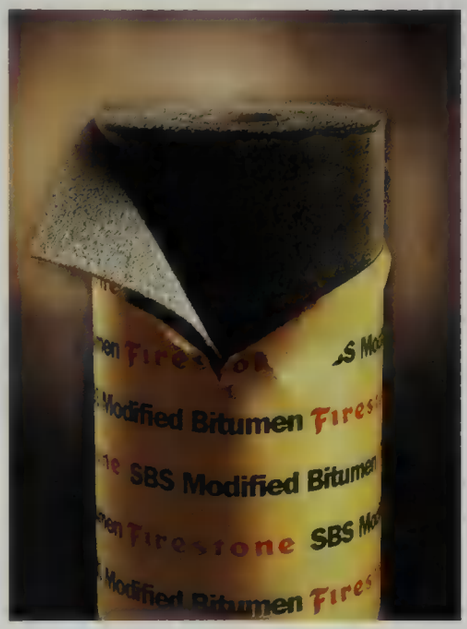
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CIRCLE 109 ON INQUIRY CARD

AIA/ARCHITECTURAL RECORD CONTINUING EDUCATION

INSTRUCTIONS:

◆ Read the article, "New Tools in Fire Protection" (pages 207-210), using the learning objectives provided to focus your study.

◆ **Complete the questions below, then check your answers (page 282).**

◆**Fill out the self-report form on page 282 and submit it to receive two AIA Learning Units.**

—Mark Scher, AIA Director of Continuing Education Programs and Products

Questions:

1. What issues, other than safety, are behind the successful adoption of residential sprinklers for multifamily and single family residences?

Answer 1.

2. What safety factors are behind negative- and positive-pressure door tests?

Answer 2.

3. What code and market-place changes are occurring that will affect the way architects specify fire-rated doors?

Answer 3.

4. List and briefly describe the pros and cons of: intumescent seals, sprinklers, passive noncombustible-material protection, Halon 1301, and fine water spray systems.

Answer 4.

5. Describe two areas of NIST fire-protection research with important implications for designers.

Answer 5a.

b.

6. Apply the design lessons learned from disasters such as the 1991 Oakland fire.

Answer 6.



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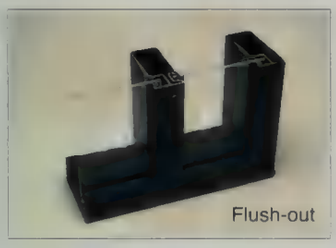
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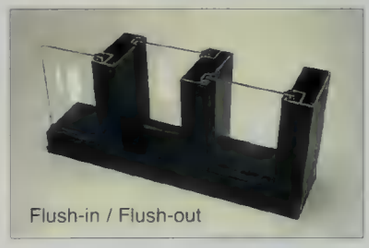
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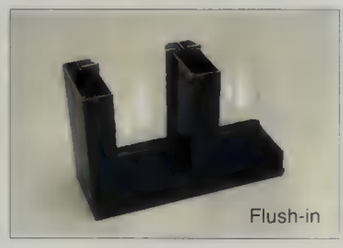
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CIRCLE 111 ON INQUIRY CARD

AIA/ARCHITECTURAL RECORD CONTINUING EDUCATION

ANSWERS:

◆ Answers refer to the the article, "New Tools in Fire Protection" (pages 207-210), using the learning objectives provided to focus your study.

◆ To receive CES credits, fill in the Self-Report Form below.

1. Economy of scale: The cost of sprinklers on three floors is compensated by a fourth floor. Maintenance: Multifamily residences are likely to have a professional superintendent for monitoring and servicing systems. Density: Homeowners in isolated areas must share responsibility for their own protection. Remoteness also justifies fewer fire stations in sparsely populated areas and for some urban redevelopment projects. Residential sprinkler ordinances allow fire trucks longer response times in denser living areas.

2. Traditionally, doors have been tested under negative pressure. Positive pressures, typical in real fires, permit most existing swinging doors to leak super-heated gases and smoke at a rate high enough to ignite the door and to impede firefighters' vision.

3. ICBO voted to change to positive-pressure testing for both wood and metal doors. BOCA and the SBCCI code groups may adopt this test procedure. Working together, all three groups proposed fire test standard NFPA 252, allowing both positive and negative door testing in the proposed International Building Code. Door manufacturers are retesting and redesigning some of their products. Research, development, and new production costs of the new doors may add about 10 percent to the cost of a metal door and up to 20 percent for wood.

4. Intumescent gaskets begin to expand gradually, filling the gaps between the door and frame, and blocking flames and smoke. Conventional seals are only used one time and are ineffective smoke gaskets on doors used repeatedly during an emergency. Sprinklers are familiar and often effective, but may not be sufficient by themselves in many spaces and/or with particularly vulnerable populations. New fabrics made from heat-resistant polymers reduce some risk from burning upholstered furnishings. Cost is only a little higher then traditional furnishings. Halon1301, which damages the ozone layer, is an extinguisher that substitutes for water where water application would be a problem. Fine-water sprayers are effective against liquid fires and minimize water damage, but cannot completely replace Halon for electrical fires.

5. NIST is developing fire simulation software that uses CAD files for input and models smoke and fire behavior in burning buildings. Also, NIST is exploring water flows and the protection of electrical systems in elevator-door and component-housing design.

6. Plant vegetation away from structures, consider a "fuel modification zone" approach, and be aware that the government may hold individuals responsible for the way buildings are constructed and sited. Design enclosed eaves. Specify double-glazed windows and noncombustible roofs and cladding. Look for impact of the particular structure on downwind-structures in the event of a fire, i.e., flying roof debris.

AIA/CES SELF-REPORT FORM

(Use to report learning units earned for Architectural Record only)

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Bold: *indicates page number.*
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PAGE NUMBER	READER SERVICE NUMBER	
256	*86*	AD Fire Protection Systems
245		AEC Systems
47	*24*	Altro
256		American Institute of Architects
259		American Institute of Architects
60-61	*32*	Andersen Commercial Group
253	*84*	Aquafleck Acrylic Latex Multi-Color
257	*87*	Archforms Ltd.
278	*107*	Architects USA
135	*52*	Architectural Precast Association
covII-1	*1*	Armstrong World Industries
covIII	*113*	ARRIS
116	*43*	Arrow Architectural Hardware
33	*37*	Artemide
44-45		Autodesk AutoCAD R14
55		Autodesk AutoCAD LT
212-213		Autodesk DesignBlocks
214	*74*	Autodessys
276E	*103*	Belden Brick Company
41	*20*	Bentley
211	*72*	Bilco Company
117	*44*	Birdair
164	*59*	Boral Bricks
197	*65*	Caradco Decorative Glass
154	*57*	Castelite Steel Products
5	*4*	Ceco Door Products
280	*110*	Ceco Door Products
271	*100*	Ceilings Plus
261	*92*	Celadon Ceramic Slate
63	*34*	CNA/Schinnerer
277W		Consumers Relocation Services
222	*78*	Copper Development Association
101	*42*	Copper Sales Inc.
276W	*104*	CPI International
131	*48*	C/S Group
223	*79*	Diehl Graphsoft
269	*75*	Dowcraft
42	*21*	DPIC
8-9	*6*	DuPont Antron
143	*53*	DuPont Corian
146	*16*	EFCO Corp.
153	*56*	Ellison Bronze
279	*109*	Firestone Building Products
120	*46*	Follansbee Steel
64	[illegible]	Forms & Surfaces
132	*49*	GenFlex Roofing Systems
[illegible]	[illegible]	Gillis Quarries
[illegible]	[illegible]	[illegible] Raven Mills, Inc
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible] Company
[illegible]		[illegible]
28		[illegible]
[illegible]		[illegible]
210		[illegible]
118-119		[illegible]
188		[illegible]
54		[illegible]
219		[illegible]
37		[illegible]
10-11	*7*	Kawneer
266	*97*	KDI Paragon Inc.
266	*98*	Keystone Retaining Wall Systems
48	*25*	Kim Lighting
221	*77*	Kinetix
190	*62*	Kolbe & Kolbe Millwork Co. Inc.
246	*73*	Levolor Home Fashions
226	*81*	Lightscape
14-15	*10*	Louisiana Pacific
57	*31*	Lucent Technologies
297-301		Manufacturers' Spotlight
34-35	*17*	Marlite
192-193	*63*	Marvin Windows & Doors
267-268		McGraw-Hill Architects' Book Club
263	*94*	McGraw-Hill Books
224		McGraw-Hill Construction Info. Group
259	*90*	Modern Fan Company
262	*93*	The Money Store
26-27	*13*	Monsanto
155-162		National Concrete Masonry Assoc.
283	*112*	National Gypsum Company
189-205	*70*	NWWDA
39	*19*	Nemetschek
121-123	*47*	Oce USA
6-7	*5*	Office Specialty
257	*88*	Patio Enclosures Inc.
201	*67*	Pella Windows & Doors
265	*96*	Petersen Aluminum
12	*8*	Pittsburgh Corning
250	*83*	Plumberex
187	*60*	Portland Cement Association
258	*89*	Prairie Avenue Bookshop
2	*2*	Prince St. Technologies
163	*58*	Raco Altura
13	*9*	Raynor
4	*3*	Rejuvenation Lamp & Fixture Co.
16	*11*	Roppe Corporation
259	*91*	Seiho International
46	*23*	Senergy
100	*41*	Sloan Hydronomic Systems
273	*101*	Spring City
144-145	*54*	Sto
97	*38*	Subaru
66	*55*	3M
195	*64*	Trus Joist MacMillan
281	*111*	United States Aluminum
52	*26*	United States Postal Service
covIV	*114*	USG Interiors
204	*69*	Vetter
249	*82*	The Vinyl Institute
264	*95*	Viracon
62	*33*	Visa Lighting
203	*68*	VT Industries
65	*36*	Wausau
17-24		Weather Shield
99	*40*	Weatherend
199	*66*	Weyerhaeuser
25	*12*	WILA Lighting
43	*22*	Wilsonart International
58-59	*30*	Wood Works
274-275	*102*	Xerox Engineering Systems
278	*108*	Xypex Chemical Corporation
277E	*105*	YKK AP
133	*50*	Zeluck Incorporated
206	*71*	Zero International
98	*39*	Zurich Insurance Company

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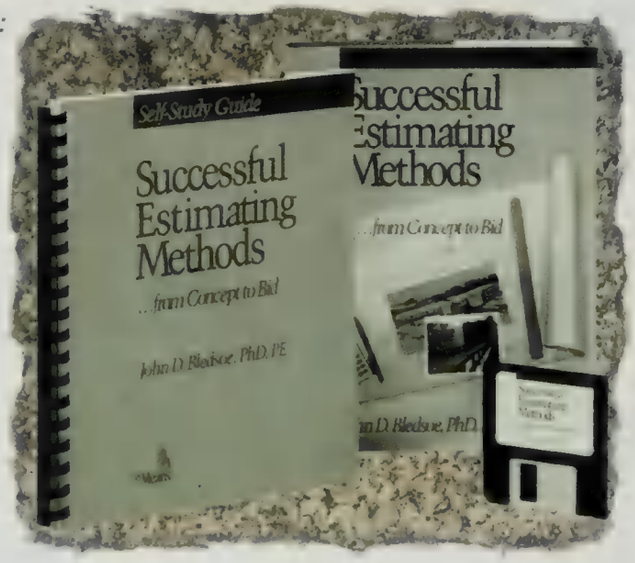
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***Successful Estimating Methods Self-Study: From Concept to Bid*—Self-Study Guide**
By John D. Bledsoe, PhD.

In this self-study guide, you'll find clearly delineated learning objectives, a suggested outline for the program of study, cost estimating information and suggestions, practice exercises and problems, and questions for self-assessment. This package includes a 288-page hardcover book, a participant's guide, and a diskette with over 30 estimating spreadsheet templates that are useful for study and as a practice tool. Participants will also have Internet access to the templates

Contact Hours/Learning Units: 7.5/22.5 • $79.95 AIA/$112 ▪ Order Number: W764



***Successful Estimating Methods: From Concept to Bid*—Workshop-in-a-Box**
By John D. Bledsoe, PhD.

This program is designed for experienced practitioners to present to their firm or other organizations. In addition to the 288-page hardcover book, the instructor's guide provides a course syllabus and other guidance for organizing and presenting the course, including learning objectives and a plan for teaching programs of various lengths. Also included are exercises, quizzes, solutions, and master transparencies. Instructors can access spreadsheet templates for Internet downloading

Contact Hours/Learning Units: 7.5/22.5 ▪ $79.95 AIA/$112 ▪ Order Number: W765-C



Project Administration: Are Your Projects on Time and on Budget?
By the AIA

This workshop-in-a-box will help you teach key issues in project management. Topics include financial indicators, scheduling, software, monitoring, and management tips from practitioners around the country.

Contact Hours/Learning Units: 7.5/22.5 ▪ Coordinator Kit $45.50 AIA/$64 • Order Number: J197-C ▪ Participant Guides $15 AIA/$21 ▪ Order Number: J197-P

How to Speak Persuasively NEW!
From American Management Association

Influence others. Through this book, you can learn to deal with employees or bosses, clients, vendors, colleagues, and coworkers. Develop a persuasive speaking style that builds on your own abilities. Included are two multiple-choice tests.

Contact Hours/Learning Units: 10/30 ▪ $98 AIA/$138 ▪ Order Number: W789

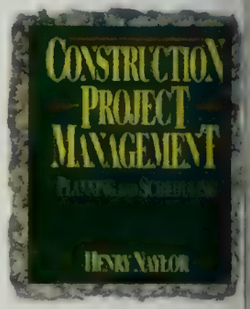
The Client Connection: Processes and Case Studies on CD-ROM
From AIA

Explore construction management, design/build, risk management, alternative futures in the architectural profession, and information technology and communications from over 30 seminars and workshops this year.

Win/Mac

Reference • $49 AIA/$69 • Order Number: W784

Construction Project Management: Planning and Scheduling
By Delmar Publishers



This book covers basics of scheduling projects: project definition, building and refining a schedule, and computer assistance, with more than 150 illustrations. The book follows a hands-on approach with defined learning objectives, paper-and-pencil exercises activities, and short self-checked quizzes.

Reference ▪ $64.95 AIA/$91 • Order Number: W754

Listen and Be Listened To NEW
From American Management Association

You may hear, but do you really listen? You'll learn t reduce costly mistakes caused by miscommunication, lis ten with all of your senses to pick up the messages be hind words, focus on the content and not the delivery and improve your memory to retain facts. Four one-hou tapes and a step-by-step workbook give you specific so lutions to real-life management problems.

Contact Hours/Learning Units: 10/30 ▪ $155 AIA/$217 Order Number: W808

Successful Negotiating NEW
From American Management Association

This book teaches the you the art of win/win negotiating Learn prenegotiation planning and the use of details lik seating arrangements and meeting site selection. Discove timing and association techniques, identify real but ofte hidden needs, use questions to control discussion, an communicate your position precisely.

Contact Hours/Learning Units: 20/60 ▪ $110 AIA/$154 Order Number: W809

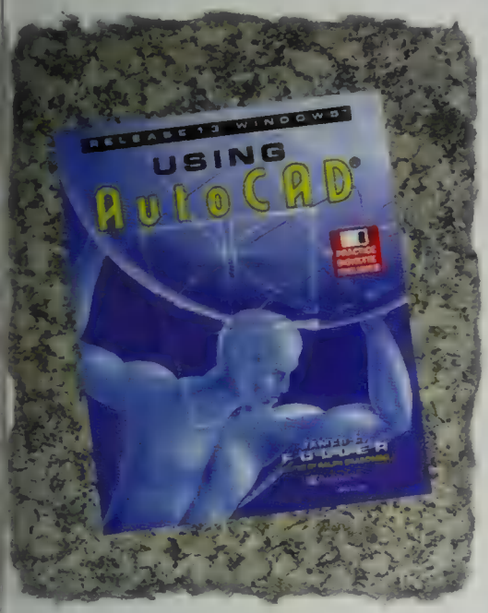
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eginning users. It is organized under specific command eadings for immediate reference and presented in a pro- essive learning sequence that parallels the teaching/ arning order preferred by experienced AutoCAD structors.

eference ▪ $45.95 AIA/$65 ▪ Order Number: W802



Studying a Building With Architects' Eyes
By TravelEd NEW!

Correspondence courses for traveling architects. Study any building, any city. And, maybe, deduct some expenses from your income taxes! Many of us can benefit from performing a structured citywide sidewalk analysis so that we can observe what works and what does not. The workbook program provides just this opportunity.

Contact Hours/Learning Units: 4.5/9 • $100 AIA/$140 • Order Number: W807

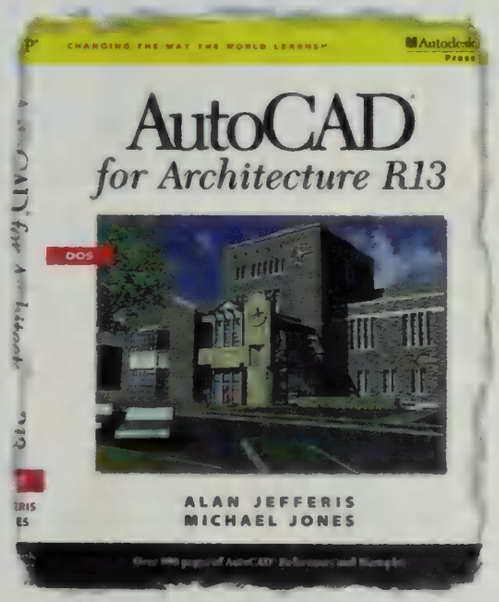
Access Architects Learning Source on line: www.aiaonline.com

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THE AMERICAN INSTITUTE OF ARCHITECTS

Architectural Programming: Creative Techniques for Design Professionals
By McGraw-Hill

This book and diskette set helps architects and clients select designs for all types of buildings to best suit specific uses and requirements. It provides hundreds of useful checklists, forms, and questionnaires.

Reference ▪ $44 AIA/$62 ▪ Order Number: W814



AutoCAD for Architecture NEW!
By International Thompson Press

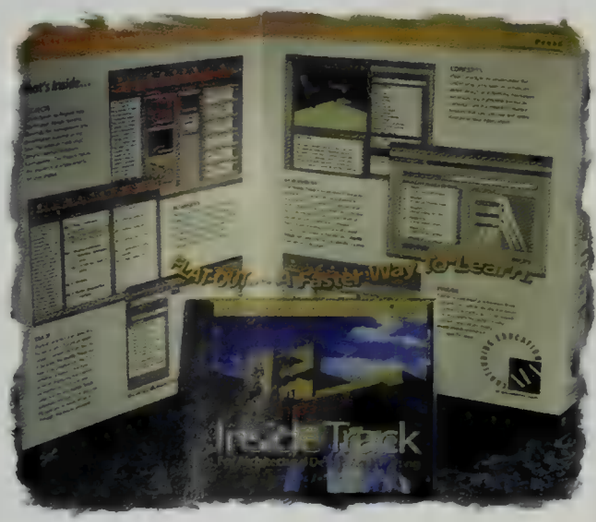
This textbook presents AutoCAD Release 13 DOS 2D commands with an introduction to 3D modeling and uses real-world examples. Changes from earlier versions are clearly marked for easy identification.

Reference ▪ $39.95 AIA/$56 • Order Number: W...

iside Track for Architectural Design and rafting
y Autodesk Press

reated specifically for design and drafting pro- ssionals, this interactive CD-ROM is a practical uide for real-world computer-aided design chal- nges. Based on Frank Lloyd Wright's allingwater, an exciting blend of over 650 MB of deos, animation, narration, illustration, projects, xercises, and tutorials. Organized logically round concept-, process-, and reference-based arning modules, you'll be able to complete the eries of tasks to create a useful output.

ontact Hours/Learning Units: 40/80 ▪ $149.95 IA/$210 ▪ Order Number: W753



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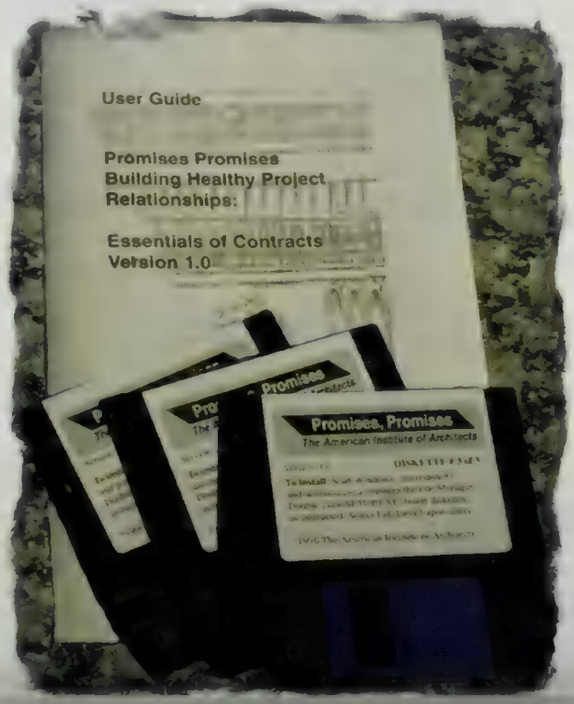
"This program is professionally coordinated and thorough. It is extremely useful and can be considered invaluable because of the new information that has come to light since I became registered."

Highlights

Promises, Promises: Forging Healthy Project Relationships
By AIA Documents

This series of six workshop-in-a-box modules examines how to forge healthy project relationships through well-defined roles, responsibilities, and rights. It was developed by the AIA's Documents Education Task Group specifically for architects.

The two cornerstones of the AIA's document program—A201, General Conditions for the Contract for Construction, and B141, Standard Form of Agreement Between Owner and Architects—define the relationships among architect, owner, and contractor. Knowing these relationships and the associated rights and responsibilities is crucial to successful program management and avoidance of disputes.



Coordinator's Kit—includes a complete set of instructor guides and implementation guidelines for each of the six workshop-in-a-box modules
$225 AIA/$315 ▪ Order Number: W790-C

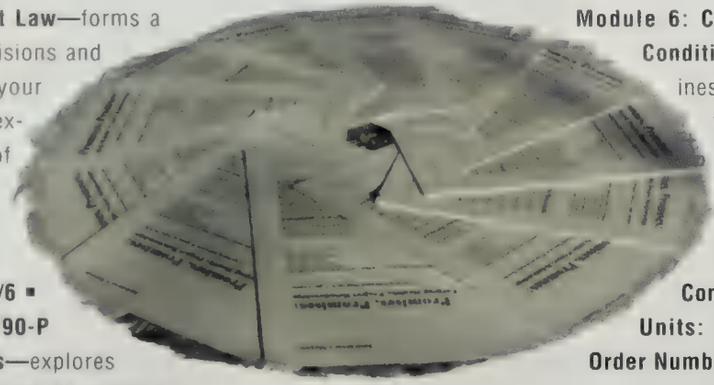
Module 1: Essentials of Contract Law—forms a basis for project-relationship decisions and improved communications with your lawyers and owners. This module examines contract law, elements of contracts, agency and negligence law, and the use of standard contract documents.
Contact Hours/Learning Units: 3/6 ▪ $15 AIA/$21 ▪ Order Number: W790-P

Module 2: Design Phase Services—explores the scope of the architect's basic services, owner's responsibilities during preconstruction, customized scope of services after contract, optional and contingent additional services, and project representation.
Contact Hours/Learning Units: 3/6 ▪ $15 AIA/$21 ▪ Order Number: W791-P

Module 3: Design Phase Conditions—examines compensation and billing, timing and duration, ownership and use of the documents, and suspension and termination.
Contact Hours/Learning Units: 3/6 ▪ $15 AIA/$21 ▪ Order Number: W792-P

Module 4: Construction Phase Services—delves into the roles and responsibilities of the owner, architect, and contractor; observation vs. supervision; action on the owner's behalf; and submittals such as review, approval, and no action.
Contact Hours/Learning Units: 3/6 ▪ $15 AIA/$21 ▪ Order Number: W793-P

Module 5: Construction Phase Condition I: Office—timing and delays, suspension and termination, and special provisions.
Contact Hours/Learning Units: 3/6 ▪ $15 AIA/$21 ▪ Order Number: W794-P



Module 6: Construction Phase Condition II: Field—examines subcontractor relations, contractor's payments, claims, corrections to the work, and project close-out.
Contact Hours/Learning Units: 6 ▪ $15 AIA/$21 ▪ Order Number: W795-P

Essentials of Contracts Self-Study Diskette
By the AIA

This 3.5" diskette is a tutorial version of the first workshop-in-a-box module of Promises, Promises: Forging Healthy Project Relationships. Windows.
Contact Hours/Learning Units: 5/15 ▪ $49 AIA/$69 ▪ Order Number: W755

Upgrade! The ArchiCAD Interactive CAD Course
By Graphisoft

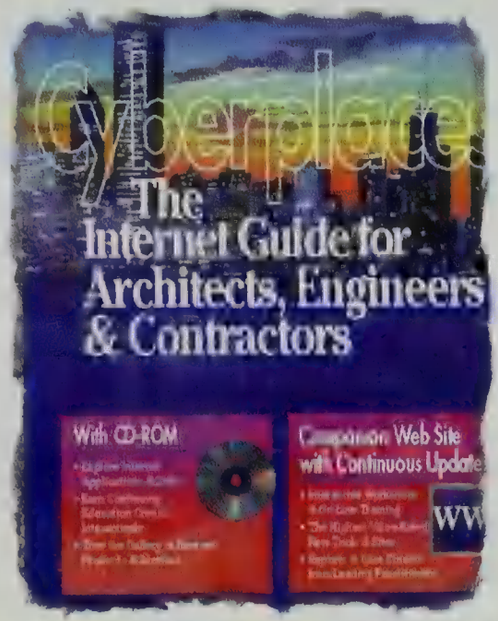
Discover the power and benefits of ArchiCAD. This CD-ROM course includes a 52-page tutorial, sample files, renderings, animation, and a self-administered test to be returned to Graphisoft.
Contact Hours/Learning Units: 12/24 • $32.75 AIA/$46 ▪ Order

Cyberplaces™: The Internet Guide for Architects, Engineers and Contractors

By Paul Doherty

A book on the practical application of Internet, intranet, and related technologies specifically designed for architects, engineers, and contractors. Part I explains the latest and most useful available technology. Part II describes the application of specific tools, with examples from leading firms. And Part III previews emerging telecommunications and information-management technologies and explains how to capitalize on them.

Contact Hours/Learning Units: 20/60 ▪ $59.95 AIA/$84 • Order Number: W806



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▪ publication of the McGraw-Hill Construction Information Group

The monthly magazine architects have been turning to for design, technical, and practice information for more than a century now offers readers a chance to earn learning units. Every issue includes at least one article accompanied by questions, answers and self report form earning two learning units per article. A subscription to Architectural Record comes at no additional cost as a benefit of AIA membership. Subscription information is for nonmembers only.

Contact Hours/Learning Units: 1/2 or more per issue • NA AIA/$59 per year. •Subscription information: call 800-525-5003

Top Seller! ADA Self-Study

By the AIA

This easy-to-use, question-and-answer approach with instant checking and explanations provides an overview of the Americans with Disabilities Act (ADA) and key implications for design professionals. You'll gain quick access to the specifics of the ADA and greatly reduce the amount of time spent on research. The package also highlights ADA terminology, concepts, practice tips from top accessibility architects, and references.

Contact Hours/Learning Units: 10/30 ▪ $99 AIA/$139 • Order Number: W181



ADAHelp 2.0

By Kelley Computer Software

ADAHelp is your single-source reference for the ADA regulations. This Windows program guides you through over 700 pages of both text and graphics for Titles 1, 2, and 3; the ADA Accessibility Guidelines; Public Law 101-336; the Technical Assistance Manuals for Titles 2 and 3; and the most recent changes and updates to the ADAAG regulations. Save research time by finding obscure regulations with the full-text search engine. Copy the text and graphics for use in other programs. Software updates will be available as new regulations are adopted.

The ADAHelp software comes on 3.5" Windows floppy disks. Requires 8 MB of disk space. Separate AutoCAD graphic files are available from the vendor.

Reference ▪ $99.95 AIA/$140 ▪ Order Number: W811 ▪
Save $25 and purchase the ADA Self Study and ADA Help together $173.95 AIA/$244 • Order Number: W828





Intelligent Workplaces

By Johnson Controls, Inc.

This interactive CD-ROM describes the relationship between productivity and the office environment and how to plan for individual environmental control during the early stages of design. Design dynamic spaces that always respond to the occupants' needs.

Contact Hours/Learning Units: 6/18 • $42 AIA/$59 • Order Number: W761

"Great resource material with project-specific applications."

Practice Management

Success Strategies for Design Professionals
From the AIA learning archives
By Fathom Digital Media

Adapted from one of the AIA's most popular workshops, this program brings to life the highly rated small-projects workshop by James Franklin, FAIA. Multimedia technology is combined with questions and explanations from Ronald Battaglia, FAIA.

Contact Hours/Learning Units: 3/9 ▪ $79 AIA/$111 • Order Number: W800



Construction Administration: You Don't Want to Be a Lawyer. You're an Architect!
By the AIA NEW!

Workshop-in-a-box.

Contact Hours/Learning Units: 7/22.5 • Coordinator Kit $45.50 AIA/$64 ▪ Order Number: J199-C • Participant Guides $15 AIA/$21 ▪ Order Number: J199-P

Better Practice Management:
Organizational and Personnel Management
By the AIA

Workshop-in-a-box.

Contact Hours/Learning Units: 7/22.5 ▪ Coordinator Kit $45.50 AIA/$64 ▪ Order Number: J203-C ▪ Participant guides $15 AIA/$21 • Order Number: J203-P

How to Write a Business Plan, 4th Edition
By American Management Association (AMA)

Workbook. NEW!

Contact Hours/Learning Units: 20/60 ▪ $130 AIA/$182 • Order Number: W760

Plan Writer: The Business Plan Tool
By American Management Association

For use with How to Write A Business Plan.

Workbook Course with 3.5" diskettes for Win/Win95 • Contact Hours/Learning Units: 30/90 • $249 AIA/$349 ▪ Order Number: W797 NEW!

Successful Business Plans for Architects
by McGraw-Hill

Book. NEW!

Reference ▪ $42 AIA/$59 ▪ Order Number: W812

How to Develop the Strategic Plan
From American Management Association

Workbook.

Contact Hours/Learning Units: 20/60 ▪ $130 AIA/$182 • Order Number: W759

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Make the Money and Keep It!
By the AIA

Workshop-in-a-box.

Contact Hours/Learning Units: 7.5/22.5 ▪ Coordinator Kit $45.50 AIA/$64 ▪ Order Number: J198-C ▪ Participant guides $15 AIA/$21 • Order Number: J198-P

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By AIA Press NEW!

Book.

Reference • $25 AIA/$35 ▪ Order Number: W810

Special: Order *An Architect's Guide to Financial Management* plus the AIA Financial Management Assessment Learning Diskette to obtain an additional 9 learning units. DOS.

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Financial Competence:
Financial Statements Made Simple
By Competence Software

Diskette course.

Contact Hours/Learning Units: 10/30 ▪ $78 AIA/$110 • Order Number: W766



Mandeville: A Guide for the Marketing of Professional Services
From Professional Development Resources, Inc. (PDR)

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uildings at Risk:
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y the AIA

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uildings at Risk (Coming in September):
ind Design Basics (W786)
ood Protective Basics (W785)
ices and LUs to be determined.

***eismic and Wind Loads in Architectural Design*, econd Edition**
y the AIA

is reference on resisting lateral forces includes information on obtaining regional building codes.

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nergy-Efficient Design and Construction For ommercial Buildings
y McGraw-Hill

nergy costs remain high, and so does client interest in cology. This complete guide to design and construction ethods and materials provides the most advanced and ost-effective solutions with more than 170 illustrations 288 pages.

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By McGraw-Hill

This landmark book offers an environmentally sound approach to building design and urban planning. Revealing why building technology has been so environmentally destructive, with 175 illustrated examples it shows what can solve these problems.

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Rethinking the Conventional House
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ADA Help and ADA Self-Study Bundle [H]	C	10/30	$173.95	W828
ADA Self Study [H]	C	10/30	$99	W181
An Architect's Guide to Financial Management	B C	10/10	$25	W810
APA Interactive [H] Correspondence Course CD-ROM	CD	5/10	$29	W798
ArchiCad (Mac version) CDROM [H]	CD	12/24	$32.70	W758-M
ArchiCad (PC Win95 version) CDROM [H]	CD	12/24	$32.70	W758-P
Architectural Programming	B	Reference	$44	W814
AutoCad for Architecture	B	Reference	$39.95	W801
Better Practice Workshop-in-a-Box IG	W	7.5/22.5	$45.50	J203-C
Better Practice Workshop-in-a-Box PG	W	7.5/22.5	$15	J203-P
Buildings At Risk: Flood Protective Design Basics [H]	W	(avail. fall)	(avail. fall)	W785
Buildings At Risk: Seismic [H]	B W V	20/60	$99	W113
Buildings At Risk: Wind Design Basics	W	(avail. fall)	(avail. fall)	W786
Client Connection CDROM [H]	CD	Reference	$49	W784
Construction Administration Workshop-in-a-Box IG [H]	W	7.5/22.5	$45.50	J199-C
Construction Administration Workshop-in-a-Box PG [H]	W	7.5/22.5	$15	J199-P
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EBN Establishing Green Priorities [H] with Green Building	NQA	1.5/3	$25	W821
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How to Write a Marketing Plan	W	20/60	$130	W760
Inside Track: Architect CDROM [H]	CD	40/80	$149.95	W753
Lead Finding	V	Reference	$275	W182
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Mandeville : A Guide for the Marketing of Professional Services	B	Reference	$63	W183
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Project Administration Workshop-in-a-Box IG	W	7.5/22.5	$45.50	J197-C
Project Administration Workshop-in-a-Box PG	W	7.5/22.5	$15	J197-P
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Coordinator's Kit IG	W	3/6	$225	W790-C
1 The Essentials PG [H]	W	3/6	$15	W790-P
2 Design Phase Services PG [H]	W	3/6	$15	W791-P
3 Design Phase Conditions PG [H]	W	3/6	$15	W792-P
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6 Construction Phase Conditions Field PG [H]	W	3/6	$15	W795-P
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Successful Estimating Workshop-in-a-Box [H]	W	7.5/22.5	$79.95	W765-C
Successful Negotiating	W	20/60	$110	W809
Sustainable Architecture	B	Reference	$49.95	W813
Using AutoCad Release 13 for Windows	B	Reference	$49.95	W802

Key: B–book; C–computer CD ROM; NQA–newsletter with questions/answers; Q–questions only; V–video; W–workbook; [H]–HSW credit; IG–instructor guide; PG–participant guide; and bottom line, discount for AIA members

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Xypex Chemical Co.

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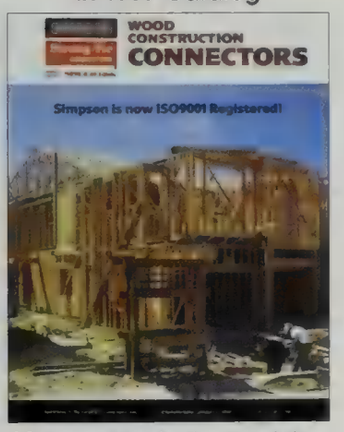


These bronze elevator door facings were manufactured by Surface Design + Technology specializing in custom & standard metal graphics. Using sheet metal finishes of a variety never offered before. There is virtually no limit to the types of patterns which can be created by combining multi-directional satin brushing, electroplating of gold, nickel or copper. For information on custom or standard designs call 800-537-1127.

Surface Design

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12 New Products Featured in 1997 Catalog



12 new products are introduced in Strong-Tie's '97 catalog, Wood Construction Connectors. A necessary reference for structural engineers, building officials, and architects, it includes updated specs, load charts, application drawings, & building code acceptance - plus info on holdown anchorage design, & available custom hanger options. ISO9001 Reg. For 1997 catalog (C-97), write POB 10789, Pleasanton, CA 94588

Simpson Strong-Tie

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A full color catalog will explain the different Handy-Shield safety covers offered for the new or retrofit projects that need to comply with the American Disabilities Act. The specific use sample, sample specifications, drawings and color choice are all summarized in this easy to understand catalog. 800-475-8629.

Plumberex

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Our Products have taken direct-vent technology & incorporated it into a new high performance fireplace.Model 6000 Supreme is a high efficiency fireplace (thermal efficiency up to 74%) & has an AFUE (Annual Fuel Utilization Efficiency) rating of 63%. The 6000 Supreme is standard with a variable regulator to adjust the flame & BTU input with the turn of a dial. Heat-N-Glo 6665 West Hwy 13, Savage MN 55378, 1-800-669-HEAT

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Clopay Building Products

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Raymond Enkeboll Designs ©1996

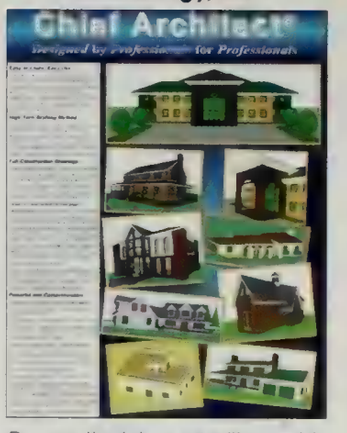


Crafts an extensive array of ArchitecturalElements carved in solid woods. 104 pg. catalog shows a selection of capitals, panels, etc. Stocked in Maple and Red Oak. Avail. for immediate delivery. Spiral Bound catalog $20.00, Special binder version $30.00. Visa & MC welcome. Brochure available. Raymond Enkeboll Designs. 16506 Avalon Blvd AR57, Carson, CA 90746. T: (310) 532-1400 F: (310) 532-2042

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ART

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PG Bell Porcelain Meets Your Budget

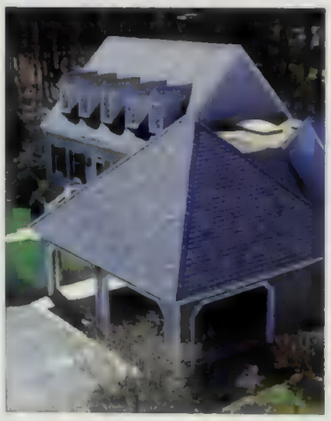


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is placed on top of the flashing inside the cavity, where it catches & permanently suspends mortar droppings above the level of the weep holes. Its patented dovetail shape prevents mortar from forming a dam, its shape with its 90% open weave allows water & air to easily move through the net & out the weeps. It's 100% recycled non-degradable polyester & is avail. in a 2-inch width. For a CAD disk , call (800) 664-6638.

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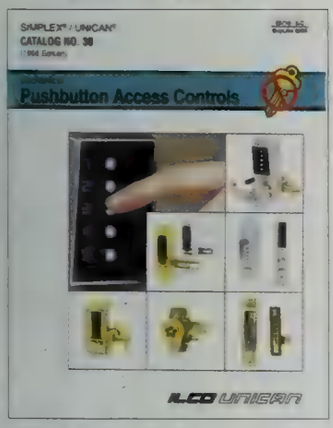


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New Revere EverGreen™ prepatinated architectural copper lets you specify the rich, warm look of patina, without waiting decades to fulfill your vision. Completely matures after 4 to 6 rainfalls. Adds striking beauty & character to any roof or accent. New EverGreen brochure. Revere Copper Products, Inc. P.O. Box 300, Rome, NY 13442-0300, 800/950-1776; F: 315/338-2105; http://www.reverecopper.com

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Bomanite Corporation

CIRCLE 175 ON INQUIRY CARD

Senerflex CDsystem and QR-CDsystem

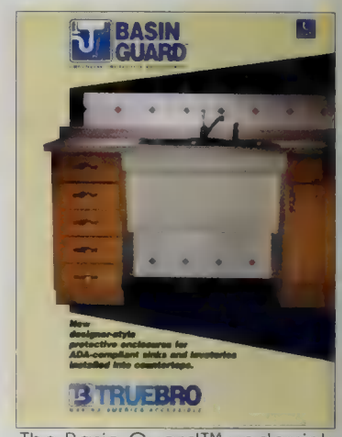


Senerflex CDsystem and QR-CDsystem are two new exterior insulation and finish systems from the Senergy Division of Harris Specialty Chemicals, Inc. CDsystems provide a sure means for controlling drainage of incidental moisture that may enter the wall. CDsystems offer a wide color selection, variety of textures, interesting aesthetic options, reduced energy costs, and low maintenance.

Senergy

CIRCLE 176 ON INQUIRY CARD

Truebro, Inc. Basin-Guard™ Undersink Enclosure

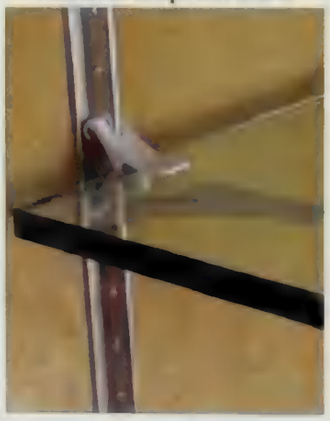


The Basin-Guard™ undersink enclosure attractively conceals unsightly plumbing and mechanical connections while maintaining knee and foot clearances mandated by A.D.A. It can be installed under kitchen sinks or restroom lavatories where countertops and sidewalks are present. The Basin-Guard™ is offered in 36" and 42" widths in white or beige and is easily trimmed down with common tools.

Truebro, Inc.

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Parallel Design Partnership Limited



'ellen's brackets', an anodized-aluminum shelving system designed by M Ali Tayar provides an elegant alternative to existing bracket-and-track systems. Can-

CARD

NRCA Construction Details on CD-ROM



This CD-ROM contains more than 350 built-up, modified bitumen, single-ply, metal, sprayed polyurethane foam, and waterproofing roofing construction details. With compatible CADD software, you can select, view, modify and print details to fit your specific project needs. The CD contains both drawing .DWG and drawing exchange .DXF files.

National Roofing

CIRCLE 179 INQUIRY CARD

Between-the-Glass Blinds



Nanik Between-the-Glass Blinds by Springs Window Fashions, incorporated with windows from various manufacturers, provides a high quality, low maintenance product ideal for healthcare, educational and commercial applications. Contact us for OEM applications or for a window manufacturer/distributor in your area. Call us at SpecFax, (800) 327-9798.

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Pyrok, Inc.

CIRCLE 181 ON INQUIRY CARD

1996 Western Woods Use Book



Now you can buy the 1996 Western Woods Use Book for just $60. It's compatible with all model building codes and comes with software to aid in design of columns and beams. Also incorporates the latest changes in design, has updated column and beam tables and comes in a handy binder that makes future updates easy.

Western Wood

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Peerless Jumbo® Mounts

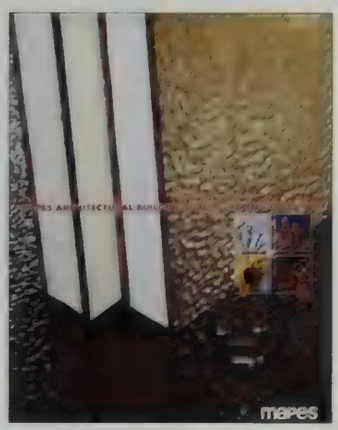


Feature adjustable height, width, tilt & swivel. Mounting plate allows the fine-tunning of gravity in relation to degree of tilt, while top clamps provide stability. Constructed of heavy gauge steel with durable epoxy finish, mounts are avail. in sizes to accom. 13"-42" screens & 125lb.-300lb. UL listed & CSA cert. Several OSHPD apprd. VCR attachments & tamper resistant security fasteners opt.

Peerless Industries

CIRCLE 183 ON INQUIRY CARD

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Mapes Industries manufacturers a complete line of architectural panels with a grafitti proof finish of porcelain enamel. The panels are available in both porcelain on aluminum or steel in a wide variety of colors. The panel applications include window replacement, curtain wall, soffit and ceiling projects. The panels are an ideal solution for high traffic/abuse areas such as schools and institutional buildings For a free sample to test, please

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800-228-2391 or
fax 800-737-6756

Mapes Industries, Inc.

CIRCLE 184 ON INQUIRY CARD

Fence Systems



This new aesthetically appealing Euro-design fence system combines see-thru good looks with strength and durability of 6-gauge galvanized steel mesh. Powder-coated in a large variety of colors to suit any design & enhance the appearance & security of any property it surrounds, this fence system is virtually unclimbable, rugged maintenance-free and easy to install. 1-800-836-6342. www.maniacom.com/omega.html

Omega Fence Systems

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THE FUTURE: "Health-care delivery and design: 2000 to 2040."

BY JOAN BLATTERMAN



Before one more obsolete hospital gets built, architects must look at the future of patient care and the technologies it will demand. That's according to Robert J. Iverson, AIA, a Senior Associate Principal with Loebl Schlossman & Hackl/Hague-Richards in Chicago, who has spent 28 years involved in the architecture of health-care—nursing homes, primary-care and tertiary hospitals, and research facilities. In a presentation for NeoCon this June, he identifies some medical advances that will dramatically affect the delivery of patient care, and suggests design strategies for the hospital of the coming century.

Among the developments Iverson anticipates might be everyday medicine by the year 2010:

The Healthwatch A device you'll wear just like a Timex, it will continually monitor your physiological and emotional state of being, and will feed your medical records directly into a data base and onto a "smart card" accessible to you and your doctor.

Automated drug dispensing You will be able to fill your doctor's prescriptions by simply using your "smart card" at a machine similar to an ATM. You will have online access via your home computer to the pharmacist or the pharmaceutical company to answer questions.

Satchip Kind of like routine [illegible] you get [illegible] comes [illegible] about the [illegible] replaced [illegible]

your blood work, blood pressure, and pulse. It will take pictures of internal organs and transmit them to your medical-record database.

Multimedia medical records Medical-records storage will become digitized in "compressed data" systems, eliminating the need for traditional medical-records departments. The multimedia network will empower patients with information such as cure rates for cancer therapies or new developments in allergy medications, permitting control over their own therapies and care.

Smart caps A company in California, Aprex, has used the electronics of a digital watch to develop a pill-bottle cap that records the time and date when a bottle is opened, letting doctors check if their patients are taking prescriptions.

Image-guided therapy Combines CT and MRI images to construct a three-dimensional, see-through model of a patient showing bones and tissue. In the operating room, surgeons will be able to see a live body and an overlaid image of the patient on a teleprompter-like screen. Light-emitting scalpels will be registered with the image, allowing surgeons to operate with more precision in areas they normally could not see. Surgeons will be able to preplan complex procedures before operating.

Trackless surgery Eventually, operations will be performed without ever invading or touching the human body—and without anesthetics. A significant advance [illegible] today's "keyhole" and "trap door" techniques, surgery will focus [illegible] waves on a target area to destroy diseased tissue. Using multiple wavelengths, free electron lasers, and proton synchrotrons, doctors will treat a target area with dye for the laser to seek out and destroy. The patient will go home immediately afterwards, with no need for a hospital bed in this bloodless, non-invasive operation.

Tele-presence surgery Iverson calls this "Nintendo medicine." Being researched by the Pentagon for a future battlefield, tele-presence combines the technologies of image-guided therapy, trackless surgery, and robots. Doctors will perform operations on patients from far away, using robotic instruments that give the controls the same feeling as if the surgeon is doing the cutting himself.

Genetic medicine By the year 2010, the function and structure for most DNA will be understood, eventually leading to the eradication of all inherited diseases.

Design for the future

By 2040, Iverson calculates, there will be 374 million Americans, but less than 300,000 hospital beds, located in "super-tertiary" centers. Other medical services—routine surgery, obstetrics, oncology, care for the terminally ill, and geriatrics—will take place in small, community-care centers, alternative-site treatment and diagnostic facilities, and at home, with care delivered via tele-medicine and other emerging technologies. To insure that the healthcare facility you design today will have value in the patient-driven medical care of the next century, Iverson has these

Now: telemedicine. Technicians remotely monitor astronaut trainees.

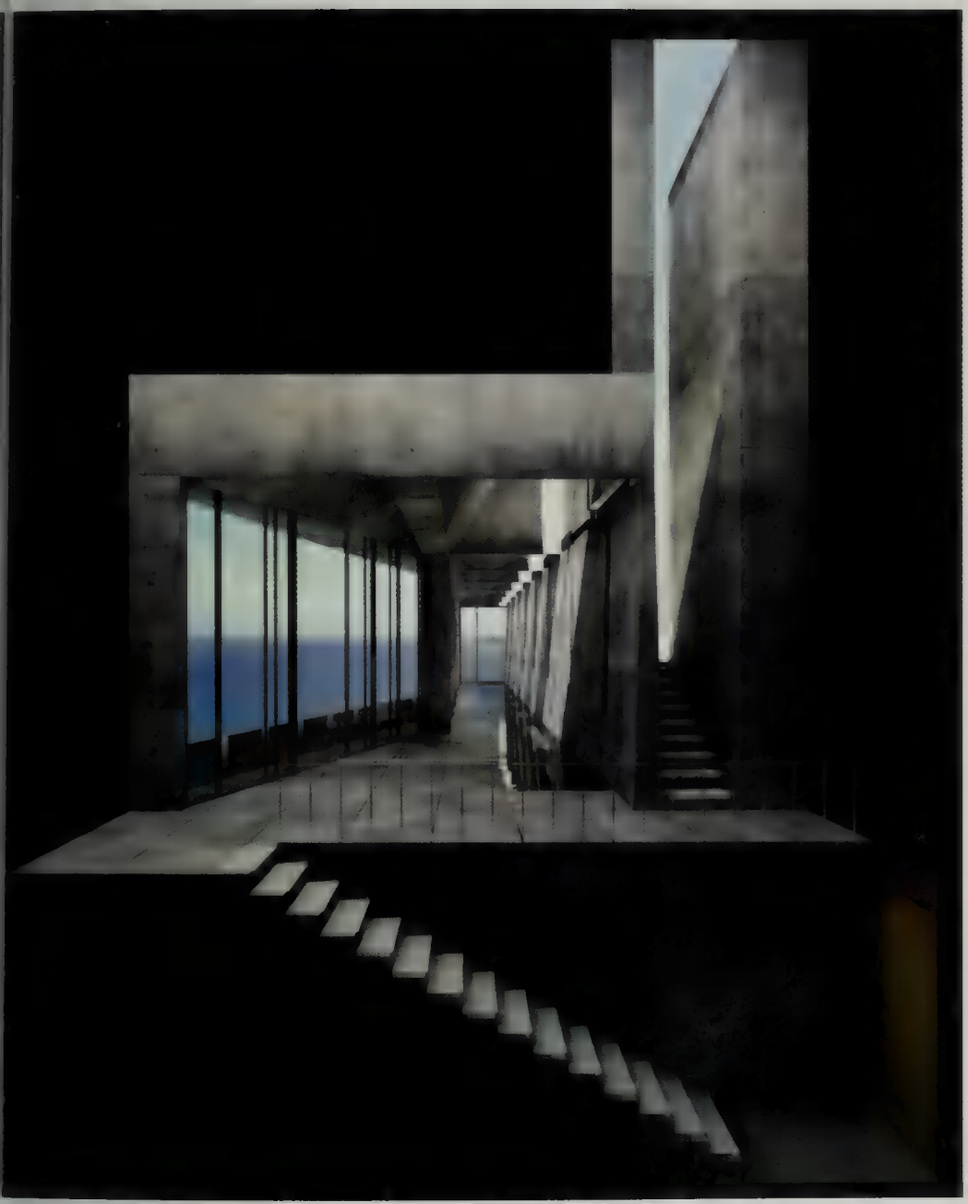
suggestions for architects as they work with clients.

1. Emphasize facility *and* operational redesign to clients. Develop a tactical assessment of future technologies, and formulate strategies of how they will affect patient needs and treatment modalities.
2. Group similar diagnostic functions such as radiation therapy, oncology treatment, and hematology, into a cancer-care center.
3. Design inpatient and outpatient surgery adjacent to each other to meet the shift to outpatient surgery. Emphasize programs that integrate similar types of care.
4. Create a universal bed concept by designing seamless medical/surgical care beds in an ICU configuration. (Most beds in the future will be in larger, private rooms.)
5. Use a flexible structural system, such as steel.
6. Create an adaptable electronic infrastructure, with extra depth above ceilings and in walls to accept fiber-optic and other cabling of the future multimedia hospital.
7. Plan and program space in modules, based on universal room types.
8. Think smaller/alterable/adaptable/flexible/changeable.
9. Consider an interstitial design.
10. Recognize the importance of design in creating a quality healing environment. It's the "spirit of what we do" and no one else can bring that to the table. ■

Iverson can be reached at biverson@lshchic.attmail.com

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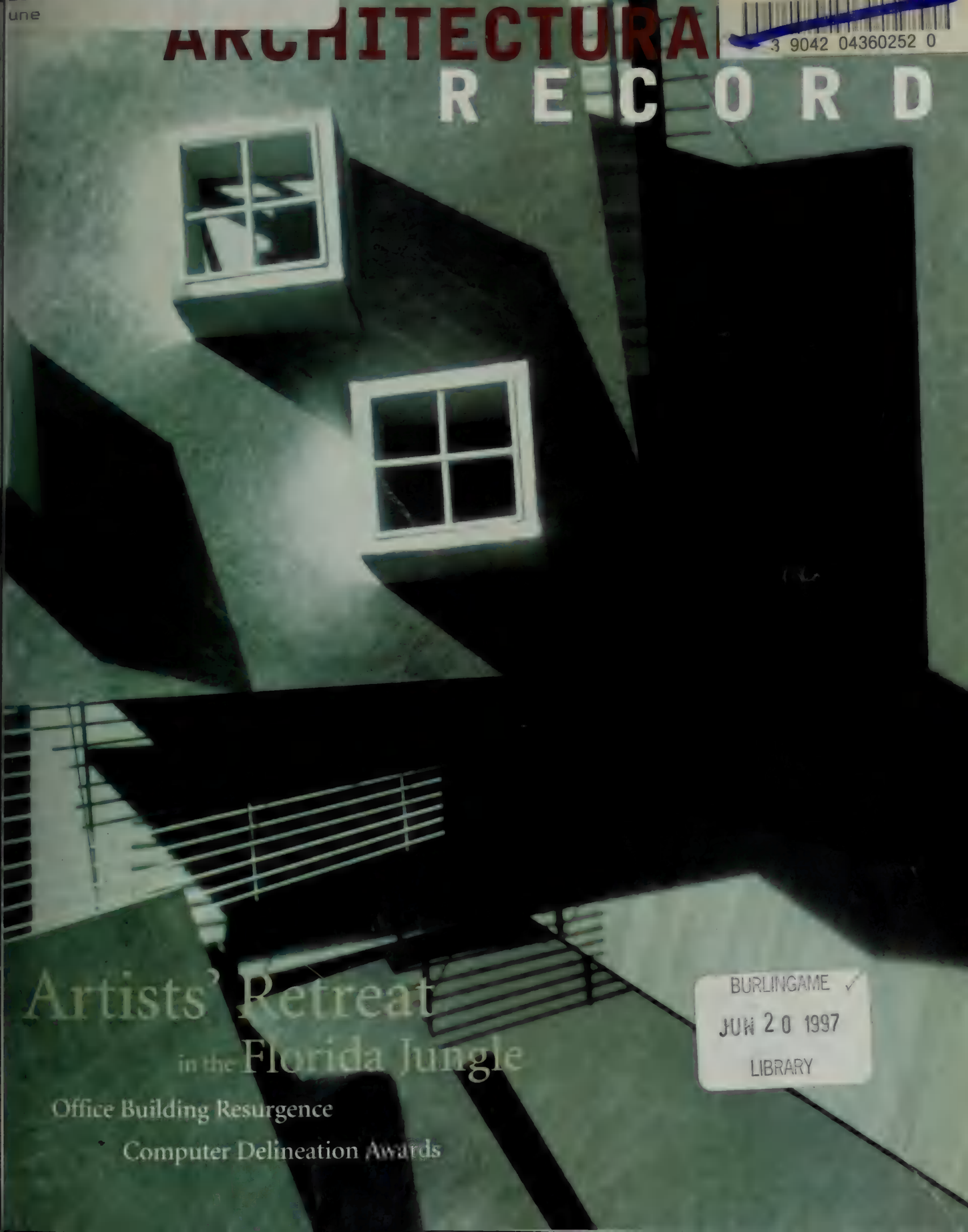
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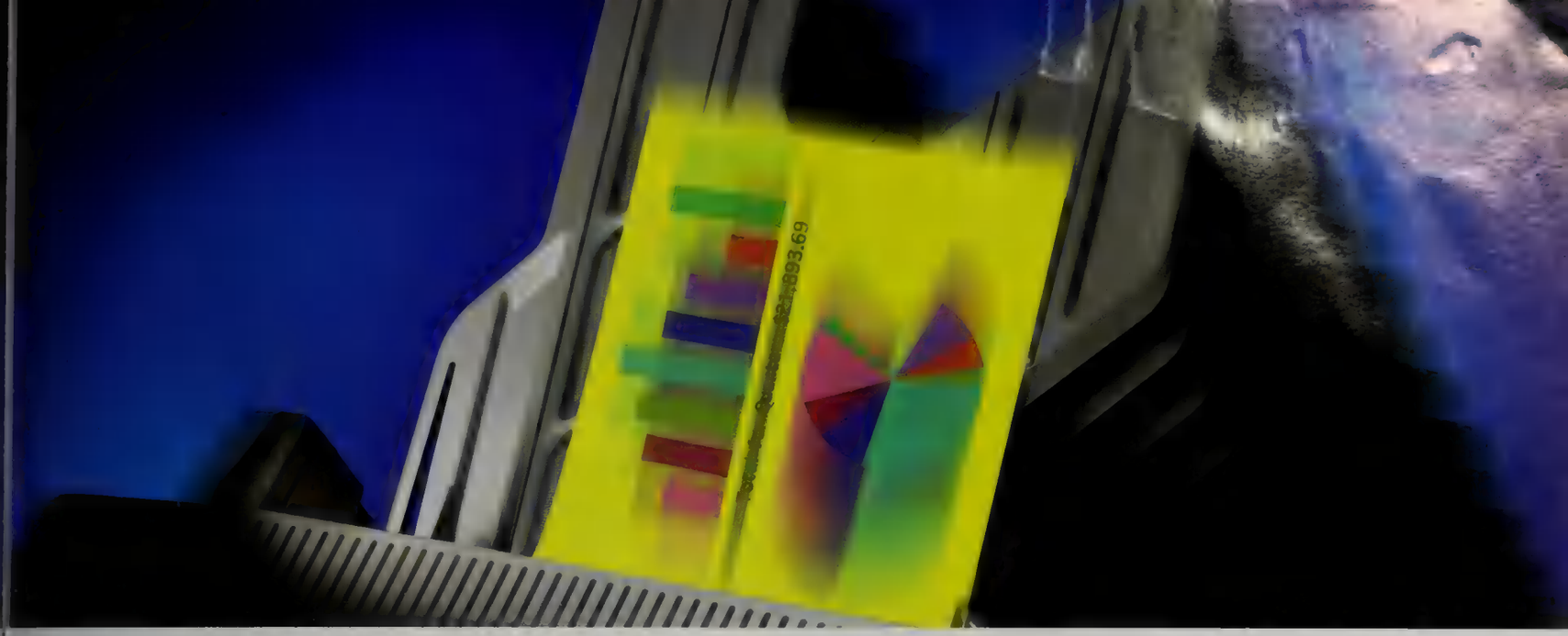
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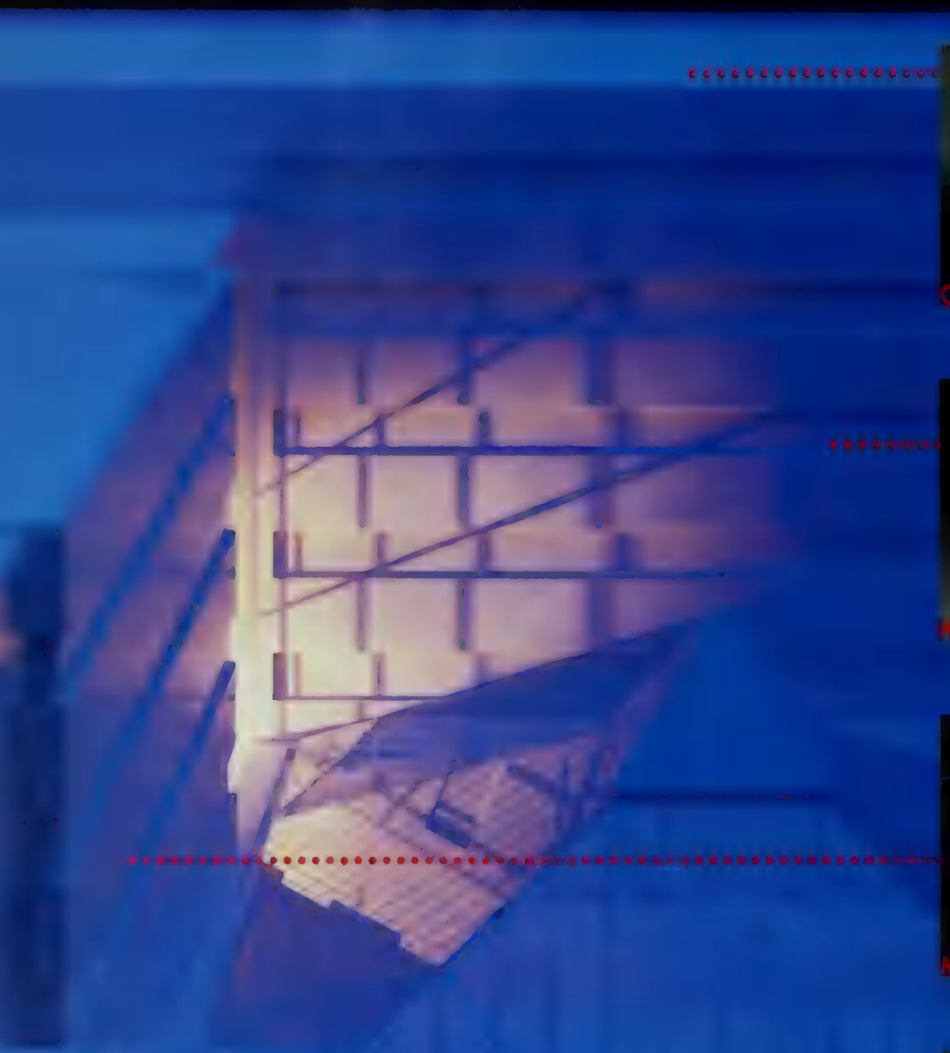
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Dialogue

15 Editorial **20 Speak Out** **24 Pulse**
18 Letters **22 Mentors** **48 Events/Books**

News

31 Oklahoma memorial competition helps heal a community
33 AIA delegates "shoot down" dues hike and TV ad campaign

Features

56 RECORD's 4th Annual Computer Delineation Awards
A distinguished jury recognizes achievement in electronic imaging and presentation.

71 For Office Buildings, Now Is the Right Time for Change. Three Articles Explain Why
The speculative office building market is picking up, and some developers and architects are thinking green.

85 Signs of the Times
Photo essay on Times Square, with commentary by Charles Linn.

Projects

98 Project Diary: Leeper Studio Complex, Atlantic Center for the Arts, *New Smyrna Beach, Fla.*
Two architects, an ideal commission, and the Florida "jungle."
Thompson and Rose Architects

112 New Amsterdam Theater, *New York City*
Forty-second Street's spectacular off-Broadway revival.
Hardy Holzman Pfeiffer Associates

120 Amphitheater and Outdoor Cinema, North Carolina Museum of Art, *Raleigh, N.C.*
A multidisciplinary team combines art and landscape.
Smith-Miller + Hawkinson Architects, Quennell Rothschild and Associates, and Barbara Kruger

Building Types Study 750

137 Office Buildings: The New Generation
New buildings for an era of restructured work.

140 NW Federal Credit Union, *Seattle, Wash.*
The Miller/Hull Partnership

144 RWE AG Hochhaus, *Essen, Germany*
Ingenhoven, Overdiek, Kahlen & Partner

152 Owens Corning World Headquarters, *Toledo, Ohio*
Cesar Pelli & Associates

Technology

161 Color in Architectural Concrete
Any color you want—as long as it's in concrete.

Practice

169 Copyright Law in the Age of the Web
The Internet makes architectural documents more vulnerable.

Products

185 Office Systems
189 Product Briefs
194 Product Literature

202 AIA Continuing Education Self-Report Form
205 Reader Service Card
214 Classified Advertising
216 The Future

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Above: *RWE AG Hochhaus, Essen, Germany. Ingenhoven, Overdiek, Kahlen & Partner, Architect. Photo: © Holger Knauf.*


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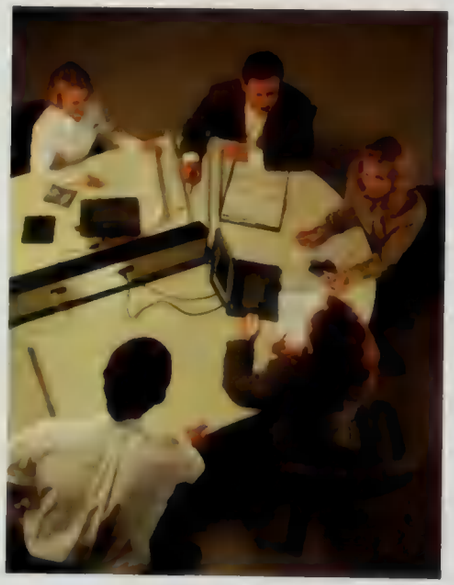
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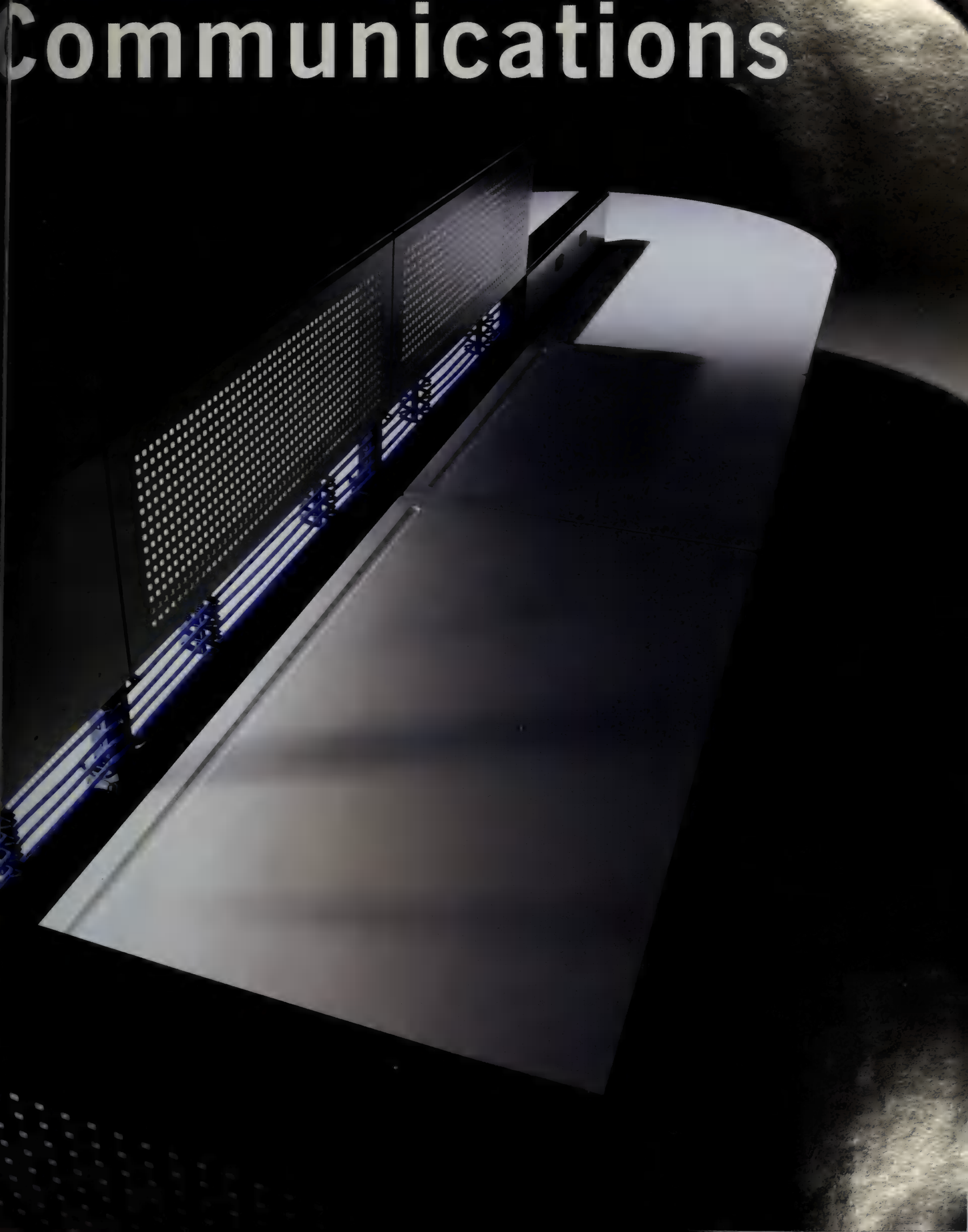
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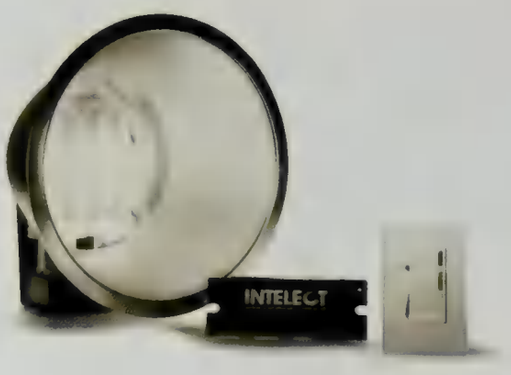
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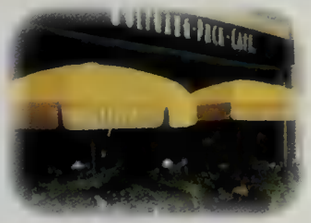
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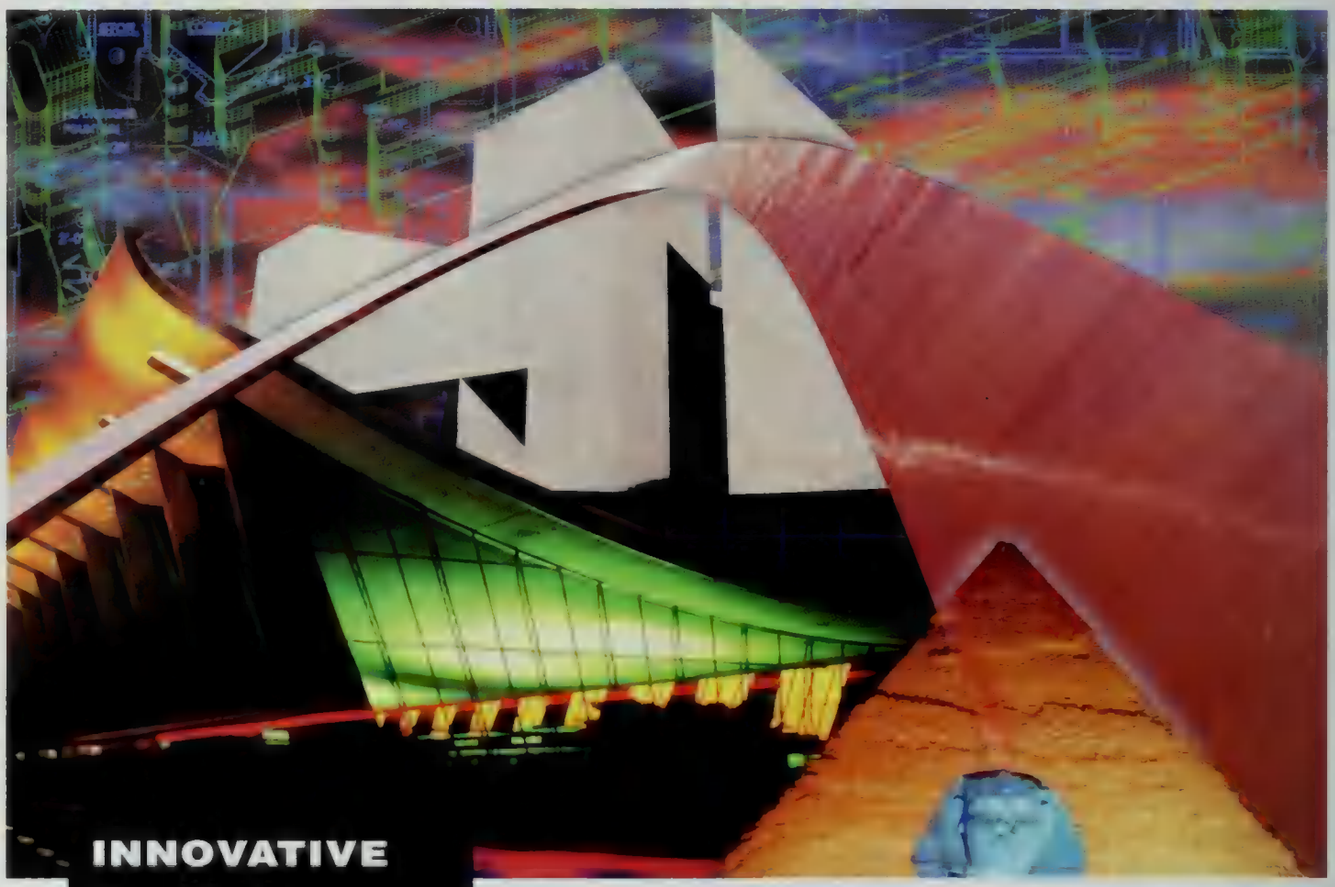
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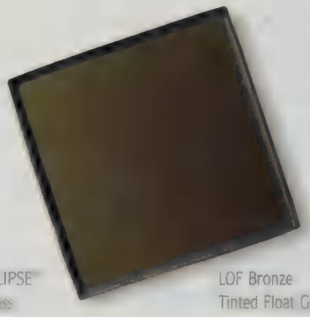


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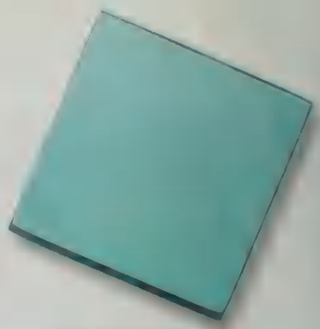
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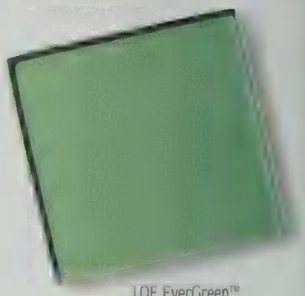
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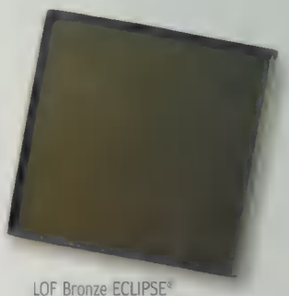
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CIRCLE 9 ON INQUIRY CARD



EDITORIAL

What Are Our Ethics?

BY ROBERT A. IVY, FAIA

How can we elevate architecture in the public consciousness, share its value, and promote architects' skills? Part of the answer lies in spreading the word, but a more important component lies in our own actions, distinguishing this profession from a mere career. In addition to mastery of technique and knowledge, architects are called to public service. Many of us entered the field not only for glory or gain, but to improve the world we live in. Our motivation, more than sentimental, was based on a strong belief in our collective ability to make a difference.

Yet making a living in architecture can be hard; we have our own families to feed, our own partners and accountants and bankers to satisfy. What begins in idealism can congeal, immediately on emerging into the marketplace, into pure business. Part of our armor against the competitive, abrasive unknown is our own design-centric culture: As a profession, we can be accused of being self-referential, giving awards to our peers, speaking in our own jargon, niggling over arcane matters that the public doesn't fully understand. But we cannot fool the public. If our architecture is perceived as purely business or purely art or merely self-congratulation, then won't our potential clients judge this profession exclusively on those terms?

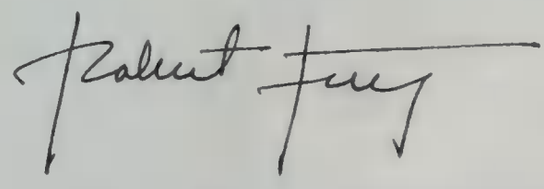
The time has come for architects to redefine their professional ethics, the tenets that guide their behavior. In our age of cultural relativism, the debate will not be clean or easy. No single ethic will emerge. The conversation should be multilayered, involving everything from the rules of doing business with our clients to larger issues like the profession's relationship to society and to the larger world.

What can we agree on in 1997? Isn't public service, or what the Carnegie Foundation report labels "civic engagement," a shared goal? Many of us already serve on code and standards boards. As contentious as we sometimes are, can we agree on energy consumption goals or development guidelines for our own communities or the environmental implications of the building materials we specify? We plan housing superbly. What should be our posture toward pro-bono residential work? How should our cities evolve? What will keep this ethical imperative from fading with the fluctuating economy, as advocacy architecture withered in the late 1970's? What are the implications of what we do?

The discussion is already taking place across the country and is often transformed into action. AIA members in New Orleans, Louisiana, together with the national organization, leaped beyond conversation to form a partnership with a local agency. "The Legacy Project 1997" will provide emergency shelter and social services for the homeless on a 7.5-acre campus near the downtown. A real place. A real need. A real answer.

In New York, educator and architect Robert Geddes, FAIA, is co-directing what he calls a "civic triumvirate," a coalition of three interest groups—the profession, the academic community, and the public. The project, centered in Harlem, uses architects' skills to develop the Upper Manhattan Empowerment Zone. All the participants, whether students, architects, or the public, benefit.

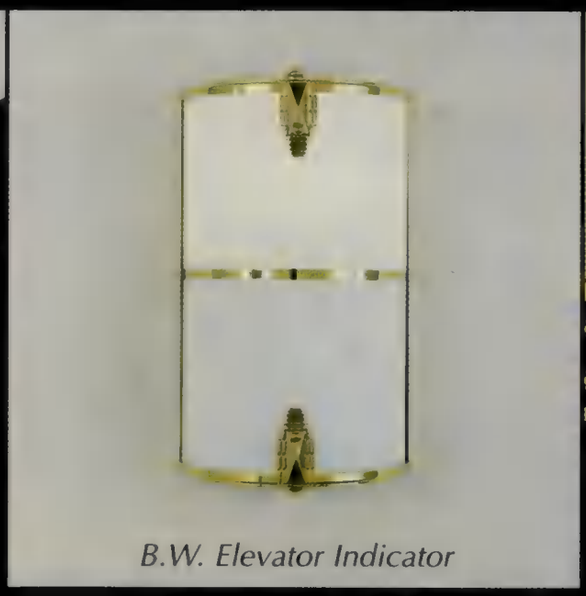
As architects, we are trained to listen well, to translate multiple points of view into ordered thought, and to build. The moment has come to agree on what constitutes public service and to act individually and as a body from that shared belief. Some of us will consequently design skyscrapers that minimize reliance on fossil fuels; some will look into the shadows of those highrises and devise shelters for the homeless. There is room for all our skills.



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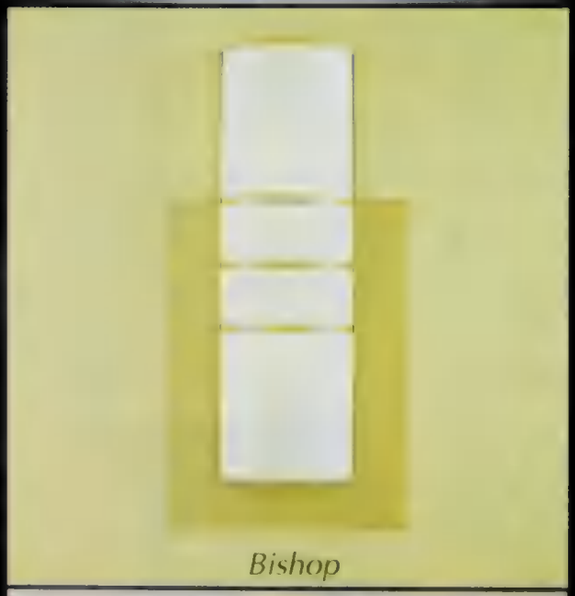
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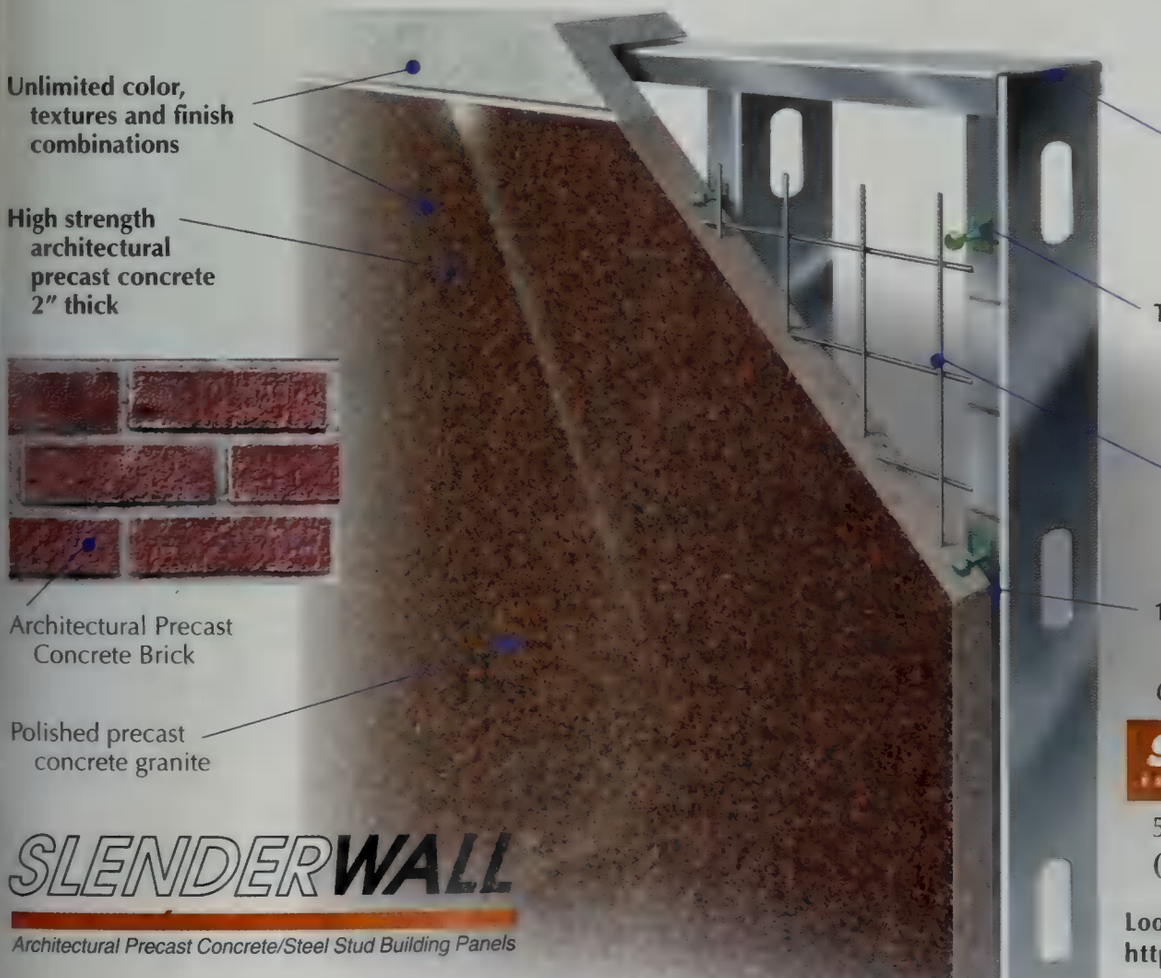
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CIRCLE 11 ON INQUIRY CARD

LETTERS

The certification debate

I read with dismay Robert Clough's response to the "designer" who, in an attempt to pass the Architecture Registration Exam (A.R.E.), took the design section 30 times [RECORD, April 1997, page 28]. While I am sympathetic to the designer's frustration, given the subjectivity of the exam, it is Clough's disclosures as chairman of the AIA's National Licensing Committee that I find disturbing. Clough states, "The trend in licensing is to allow less opportunity for those who do not follow the path of obtaining an accredited degree, IDP training, and passing the A.R.E." As an architect who became licensed under the apprenticeship clause with a B.A. in art history and 11 years of practical experience, I must speak for those individuals who follow alternative paths on their way to achieving design excellence.

As Robert Frost, our poet laureate, penned in one of his most famous poems, "Two roads diverged in the wood and I, I took the one less traveled by, and that has made all the difference." It is often that less traveled road that leads one to a greater diversity of experiences, hence greater grist for one's architectural mill. It also happens to reflect more accurately the profile of those who pursue the American dream. I have observed with sadness and regret the profession's relentless quest to close the doors on those who for various reasons learn their craft by taking alternative routes. The doors that are closing are being shut primarily in the faces of those who may not have the means to incur the debt associated with a conventional architectural education: minority students; foreign emigrés who have an architectural degree from a school in their own country that is not accredited by the National Architectural Accrediting Board; women who may not have dropped out of architecture school to raise a family but who [illegible] for years while performing domestic duties.

What I find equally disturbing in Clough's response is his statement that "NCARB recently voted to require an NAAB-accredited degree in architecture to qualify for an NCARB certificate." While I procured mine some years ago, if NCARB chooses to make this requirement retroactive, I will be forced to take the exam in every state in which I wish to practice, assuming I would qualify to do so based on my background. Although I have built across the country, this would limit my practice to my own state because I belong to the generation of architects whose computer literacy stretches only as far as the word processor but who seems to survive nicely using pencil and paper to sketch concepts and plans that the younger generation commits to the computer.

I would argue for an A.R.E. that tests competency and creativity rather than computer literacy. As one who took the exam after an 11-year apprenticeship in the Interior Design Department of Skidmore, Owings & Merrill and passed it the first time, I would lobby for a qualifications system that is open to all aspirants and an examination that is tough but fair. In a world where architects are increasingly required to be creative in seeking diverse careers, we should allow that trend to be reflected in the applicant pool for the A.R.E.

My partner, Stanley Tigerman, FAIA, is also licensed under the apprenticeship clause. We only hope that the firm of Tigerman McCurry does not become disenfranchised because the profession, as represented by NCARB, chooses to restrict the practice of architecture to those who follow the conventional route, thereby alienating those who break new ground and build new roads.

–Margaret I McCurry, FAIA
Tigerman McCurry, Chicago

Robert K. Clough's reference to the current "trend" in licensing is of concern to me. Of the four interns in my office, an A & E firm in Utah, I am the only one with a professional degree. These individuals do not meet the requirements to take the A.R.E. in Utah, but each is testing via proxy from the State of California, which allows candidates to fulfill the requirements with experience and/or "some" formal education. Once licensed in California, they can petition other states, including Utah, for reciprocity.

Ten years ago, I began the process of becoming a professional architect. I have "done it by the book" every step of the way, only to find out that I didn't have to. How can NCARB allow a person who is not a resident of a particular state and who is not working on projects in that state to sit for the A.R.E.?

My gripe is not with the other interns in my office. It is with a system that allows "some" to embark on the journey by means of a different path.

–Thomas E. Danks
Ogden, Utah

The A.R.E. is not a "design" exam. It is designed to test minimum competency in the health, welfare, and safety areas determined by state boards of architecture. The exam does not test and has never tested pure design ability.

–Lenore M. Lucey, FAIA
Executive Vice-President, NCARB, Washington, D.C.

In response to the question posed by Bracken Raleigh in your *Mentors* column about the number of times a prospective architect should have to take the design portion of the licensing exam in order to pass it, the answer, as many of the architects in this office will testify, is one.

–Michael Lee
Dreyfuss & Blackford Architects
Sacramento, Calif.

Taking on NCARB, Texas-style

I'm glad to know of the current showdown between the Texas Board of Architectural Examiners and NCARB [RECORD, April 1997, page 40]. I am a registered architect in Texas; I passed the exam the first time I took it. Prior to architecture school, I owned and ran a masonry business for nearly 10 years. Last year, I tried to obtain reciprocal licensure from the State of Louisiana, but was turned down. Louisiana is an "NCARB state" and I was approximately four weeks short of the required work experience to qualify and do not have a professional degree from an accredited school.

I have yet to see one student come out of a graduate school program that is better prepared to be a registered architect than someone who has been active in the profession for five, ten, or twenty years. NCARB has sold many states a bill of goods that says NCARB is what we need to "protect the integrity of the profession." Meanwhile, NCARB counts its millions of dollars in processing fees and raises exam fees to fatten its checkbook. I support stringent requirements for those desiring to be architects, but let's be reasonable.

–Thomas P. Wilkins, AIA, CCCA
Dallas, Tex.

Justifying the increased fee for the A.R.E. is not the real point of the debate in Texas or elsewhere. The soft costs saved by the added convenience of being able to take the exam "anytime, anywhere" were, in the past, just that: soft costs. In 1997, they are hard costs. Every day we make choices between convenience and expense, whether we drive or walk to work, use the telephone or send an E-mail message. The point is that NCARB should not have been allowed to incur such a great expense for what, in the end, is minimal added convenience.

To take a little heat off the NCARB, a separate issue connected to the debate is that architecture interns are not compensated at a level commensurate with their education or their professional training. Compensation is clearly an issue profession-wide, and the best long-term solution we have heard is for

(continued on page 198)

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CIRCLE 12 ON INQUIRY CARD

SPEAK OUT Joint ventures: "It doesn't have to be a dirty word."

BY DAVID R. DIBNER, FAIA



David R. Dibner, FAIA, was vice president and principal of Sverdrup Corporation from 1989 to 1992. Prior to that he was senior vice president of Bernard Johnson, Inc. from 1982 to 1989, and assistant commissioner for design and construction with the General Services Administration in Washington, D.C. He is the author of, among other titles, Joint Ventures for Architects and Engineers, *which was published in 1972 by The McGraw-Hill Companies.*

It was almost 30 years ago, when at AIA headquarters, I overheard an official of the AIA tell a group of practitioners during a lunch break, "Joint ventures, that's a dirty word around here!" I was surprised to hear that because, at the time, I had been engaged in several very successful joint ventures. I attempted to convince the group that it doesn't have to be a dirty word, if it is properly structured and managed. But they just shook their heads. Recently, I heard a prominent architect state that his firm "would never joint venture." And my old feelings about the subject welled up again. To me, it is like saying marriage is not an acceptable institution because there are some divorces. So here I am again describing and defending joint venturing as an acceptable form of practice.

First of all, let me make it very clear that if you feel that your firm can obtain and produce the project by itself, or with the help of consultants, then by all means go right ahead on your own. But the following are some reasons you may want to joint venture:

To obtain the project, you need a firm with greater experience, recognition, or a firm with more background in a specific field, different talents, better contacts with the particular client, more political clout, or closer proximity to the site.

To produce the project, you need another firm to provide broader services, greater depth of manpower, management skills, financing, etc. In effect, a joint venture complements the strengths of your firm with the strengths of other firms.

A joint venture is a temporary contractual association to obtain and produce a specific project. It provides the opportunity to get in where the action is and do larger or specialized work, without the necessity for permanent change to your firm. Since the joint venture is for that project alone, if you don't like the new type of practice, you can return to your old ways. Or, with the new project in your brochure, you might want to continue in the new field or level of practice.

Like any other form of interaction, the success of a joint venture is dependent upon the careful choice of partners and the degree of understanding, organization, and management that is developed. There are two major forms of joint ventures:

(1) Each firm assumes the responsibility to produce a specific portion of the work, e.g. firm A is responsible from inception through design development stage; while firm B pursues the work through completion of construction.

(2) All parties agree to share the work and responsibility from beginning to end, operating under clearly defined guidelines for performance of the work.

Each form has advantages and disadvantages and depends upon the firms and the project involved. However, what is essential is that each firm's tasks and responsibilities be carefully defined and recorded in writing prior to securing the commission. This early and comprehensive agreement as to each firm's contribution to the effort is the nucleus of a harmonious and successful joint venture. There are standard forms of agreement available to joint venture participants to serve as the basis for their association. As an alternative, in most states, a Limited Liability Company (LLC) may be formed. In any case, an attorney should be consulted.

Of course there are other aspects of joint venturing that should be considered. However, I continue to maintain that this form of practice has many advantages to both small and large firms. It allows both to obtain and produce very large projects without straining their capabilities. It also provides a chance to learn new technical and management skills. Also, it assures the client that a full complement of talents is available for the project. With proper preparation and wise partner selection, better architecture can be produced than the mere sum of the firms' skills might suggest. The overriding theme must be a mutuality of interest leading to the highest goals of service to the client. It can work well, I know. ■

Contributions: *If you would like to express your opinion in this column, send submissions: by mail (with a disk, if possible) to Speak Out, Architectural Record, 1221 Avenue of the Americas, New York, N.Y. 10020; fax: 212/512-4256; or E-mail: rivy@mcgraw-hill.com. Essays must not exceed 700 words. The editors reserve the right to edit for space and clarity. Where substantial editing occurs, the author will receive final text approval.*

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CIRCLE 13 ON INQUIRY CARD

MENTORS NCARB certification in one state does not ensure reciprocal licensure in others. Should everyone be on the same page?

Michiel M. Bourdrez, AIA, has been director of operations of the National Council of Architectural Registration Board (NCARB) since 1990. Prior to joining NCARB, he was in private practice for 25 years in New York, New Jersey, and Germany.

D. Wayne Rogers, AIA, owner of Catalyst Architects in Columbia, South Carolina, serves as vice-chairman of the National AIA Licensing Committee. He is secretary of AIA/South Carolina, and created the chapter's Licensing Task Force and political action committee.





I received a degree in architectural technology from a nonaccredited school in 1986, completed a five-year internship, and passed the NCARB exam in 1995 in New York. I relocated my family to South Carolina late in 1995 and submitted an application for reciprocal licensure to NCARB, which was rejected.

When individual states set their own eligibility rules for an exam administered by a national organization, many problems arise. I support a national standard for architects, but the rules must be standardized at the state level. These rules should be enacted simultaneously, with a grandfather clause for previously registered architects to receive their certification/blue book. I am licensed in New York and can obtain reciprocal licensing in California, where, in theory, I could be responsible for the safety of thousands of people, but I cannot practice in South Carolina. How can NCARB or a state require that a practitioner 10 years out of college get a professional degree before receiving certification?

A related problem arises when obtaining AIA membership. Without reciprocal registration, I would not be able, were I a dues-paying member, to use "AIA" after my name in South Carolina. When is everybody going to get on the same page?
—Eric R. Hubbs, R.A. (N.Y.), Charleston, South Carolina

Michiel M. Bourdrez, AIA, responds:
Collectively, state architectural registration boards constitute NCARB and set the education, training, and examination requirements for the certificate. It is important to understand, however, that individual boards are autonomous and can set requirements, as they deem necessary for the public's protection, for initial registration within their jurisdictions. The different education and training requirements in New York and South Carolina illustrate this point, but both states accept the NCARB certificate as evidence of an architect's eligibility for reciprocal registration. The Architectural Registration Exam (A.R.E.), its development funded by NCARB, is the only leg of the three-legged stool (education, training, examination) on which all boards agree as a requirement for registration.

As of July 1, 1984, architects are required to have a degree accredited by the National Architectural Accreditation Board (NAAB) to obtain their NCARB certificate. Applicants for the certificate who demonstrated that they had met the old education standard or who were registered in one of the 55 jurisdictions prior to this date were "grandfathered." The "grandfather" provisions end June 30, 2000.

NCARB maintains that the 130 degree programs accredited by NAAB at 105 schools offer sufficient diversity for meeting the educational requirement while assuring a measurable standard for the certificate.

D. Wayne Rogers, AIA, responds:
Your situation reflects a common concern for many U.S. architects who are licensed—without an accredited degree—via the A.R.E. To receive an NCARB certificate one must have an accredited degree or meet NCARB's Broadly Experienced Architect provision. NCARB's plans to "sunset" this alternative route are opposed by the AIA.

The AIA supports NAAB-accredited programs as the standard educational foundation for practice and the use of uniform criteria for evaluating candidates for licensure in the areas of education, training, and examination. The danger develops when NCARB certification is the sole avenue for reciprocal licensure. Uniformity should not negate flexibility.

The AIA Licensing Committee is nearing the completion of a set of legislative guidelines on reciprocity that propose a few alternatives to the NCARB certificate. These alternative routes are not designed to lower licensure standards, but to recognize that they may be achieved through other means.

Concerning the use of "AIA" after your name, the initials may be used by any architect in good standing with the AIA, without regard to licensing status within a state. ■

Questions: *If you have a question about your career, professional ethics, the law, or any other facet of architecture, design, and construction, send submissions by mail to Mentors, Architectural Record, 1221 Avenue of the Americas, New York, N.Y. 10020; by fax to 212/512-4256; or by E-mail to rivy@mcgraw-hill.com. Submissions may be edited for space and clarity.*

I dream things that never were; and I say, "Why not?"

— George Bernard Shaw

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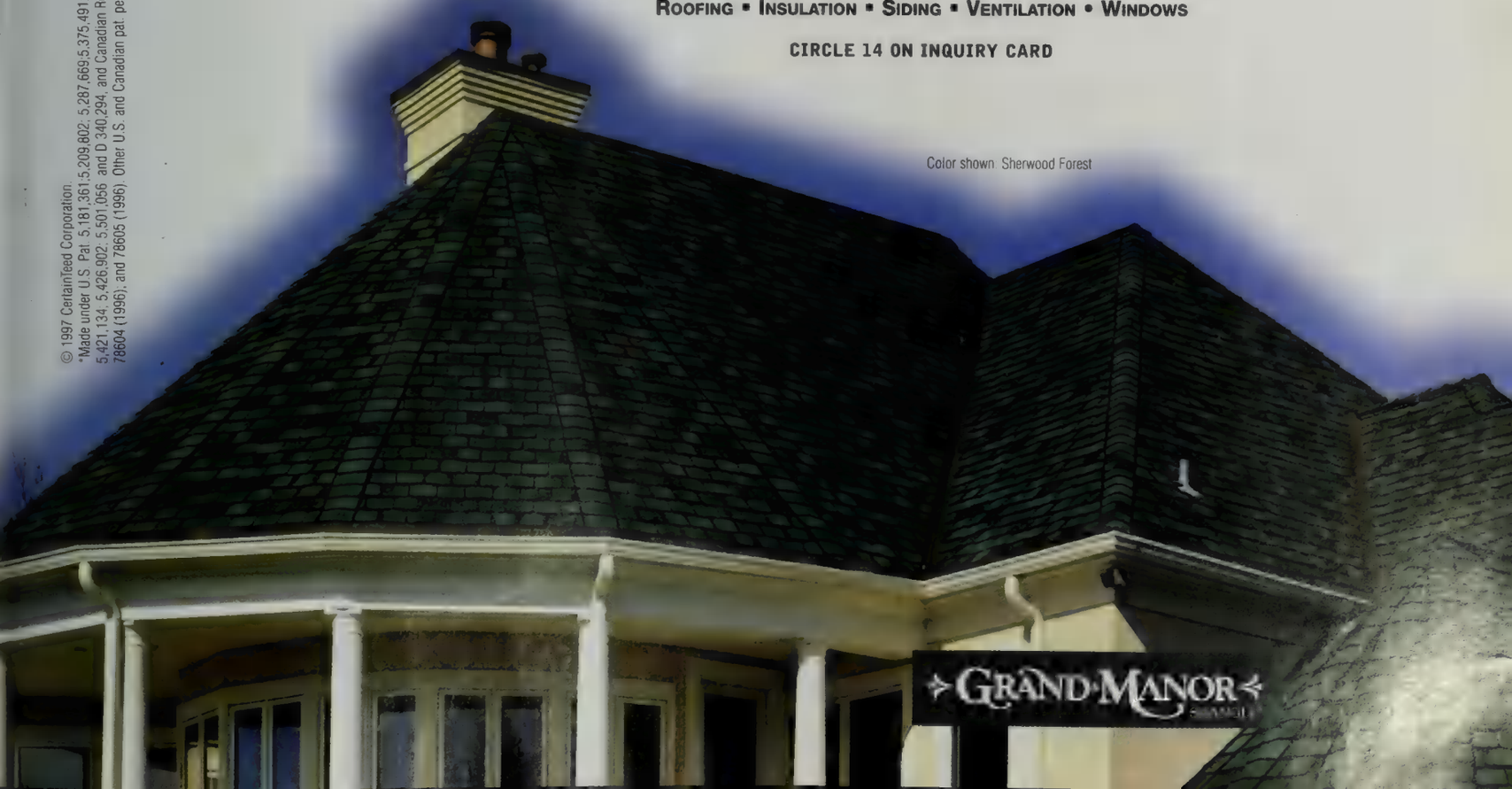
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CIRCLE 14 ON INQUIRY CARD

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Color shown: Sherwood Forest

PULSE RECORD readers were asked: Do gated communities have value?

YES: 50%

Yes: This world is so full of shades of gray that it is nearly impossible to define where you are, what you are, or who you are. Although arbitrary in implementation, gated communities provide black and white lines by which people can define where they are, who they are, and what they want their community to be. These simple lines collect and empower people to implement and build upon what they want. I'd much rather see a section of a city comprised of gated communities working together to improve their common environment, than a vast wasteland of individual groups and homes with no real connection to one another vying for power. Gated communities have at their roots organization, definition, compromise, and accommodation. They succeed because this does not change at whim. —*Emil A. Slavik*

Yes: We used to lock our front doors and cars, and put on the alarm system. And we would forbid our children to play in the street. Today we live in a gated community.

For retired persons as well as for young families like ours, security is what brings us together. And when people get involved in their communities, such as the one where we live, the results are absolutely amazing. Retired persons find new jobs, keep themselves busy through dozens of organizations, and fathers get involved with their children's activities.

Today, our doors are unlocked and there is no need for an alarm system. The kids? Well, they play on a safe street. Would we go back to the old house? I don't think so.
—*Michelle Meunier, 4th-year architecture student, Savannah, Ga.*

NO: 50%

No: Gated communities are antithetical to the American ideal of democracy. I would argue that the money and resources that are allocated by such private enclaves for security guards, road maintenance, and self-government would bring a much greater return if they were invested in the larger community. The mechanism for doing so already exists in the form of city councils and civic organizations.

Unfortunately it is a more daunting task to engage in and raise the level of civic discourse than it is to wall oneself off. Either the patrons of gated communities are slouching along the path of least effort, or perhaps the terms "security" and "community spirit" are merely euphemisms for a thinly veiled desire for social and economic segregation. Allowing such clusters of homogeneity to exist merely exacerbates the divisions underlying our society, and makes it increasingly impossible for the consensus of the melting pot to emerge. As architects, we must ask ourselves if we are to be willing partners in this process.
—*Art Lohsen, Associate, AIA, Washington, D.C.*

No: Gated communities have a perception of safety. If someone wants to rob a home or commit some other crime, they will find a way. The sense of community is somehow lost in the planning of these developments. I see gated communities as the downfall of community. When one puts up the walls, community is lost.
—*Alex Lee, Planner, Arlington, Va.*

This Month's Question:

Should the AIA Gold Medal and other awards presented to individual architects be broadened to include collaborators?

"The nature of who an architect is, and what he or she does, has changed from master builder to spirited collaborator," says Robert Ivy, FAIA, editor in chief of RECORD. Of a different opinion is L. William Chapin, II, FAIA, who notes that "...while the substance of architecture is the result of collaborative effort, its soul comes from the spirit of the individual" [RECORD, May 1997, pages 29 and 32, respectively].

Do you think that the AIA Gold Medal and other awards presented to individual architects should be broadened to include collaborators?
☐ **Yes** ☐ **No**

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Let us know your opinion:

May an editor contact you for further comments? ☐ Yes ☐ No

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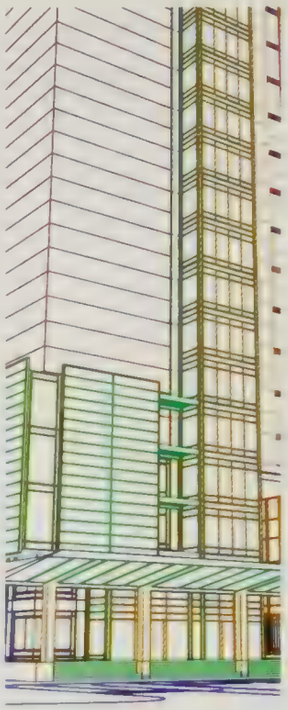
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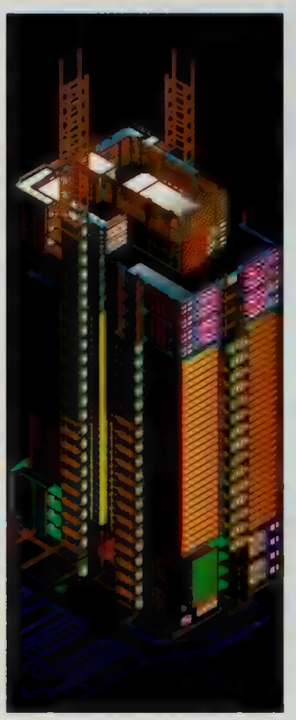
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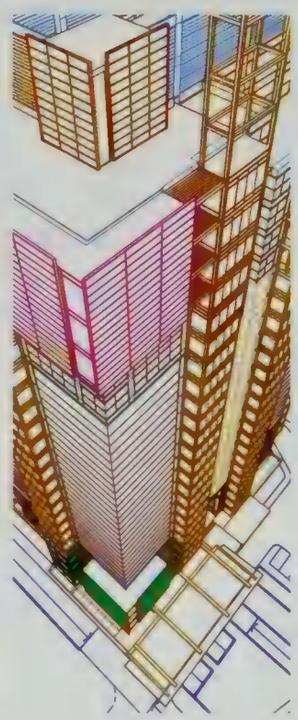
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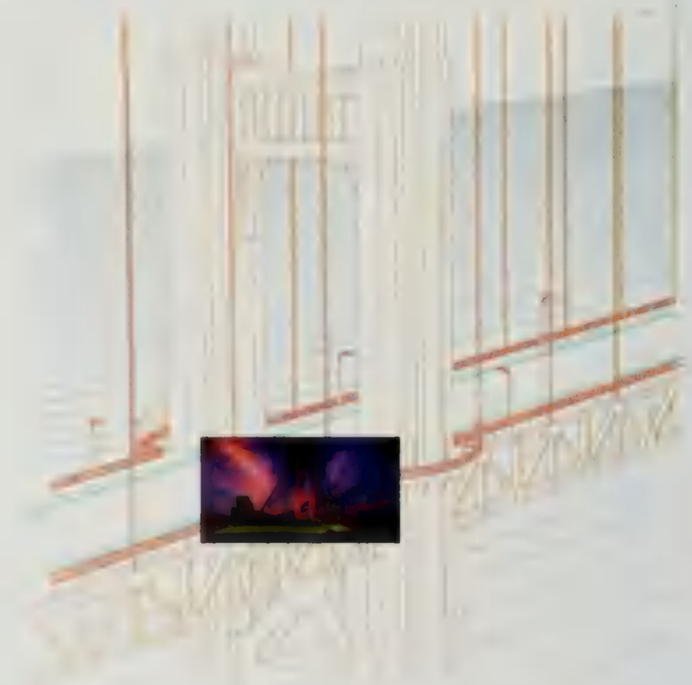




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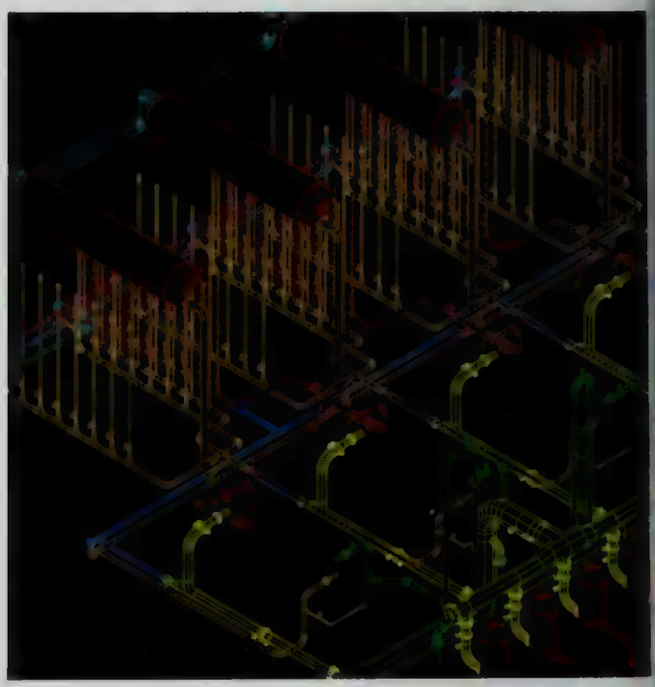


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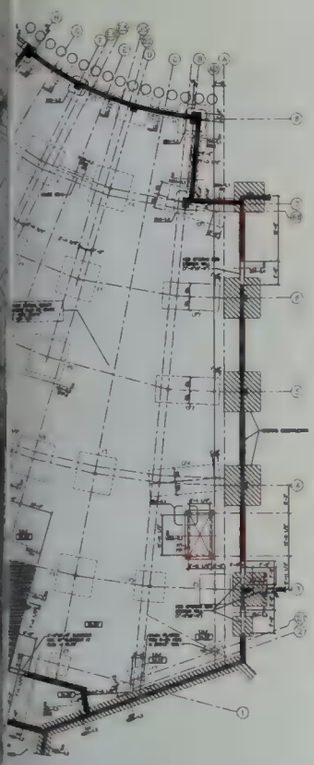


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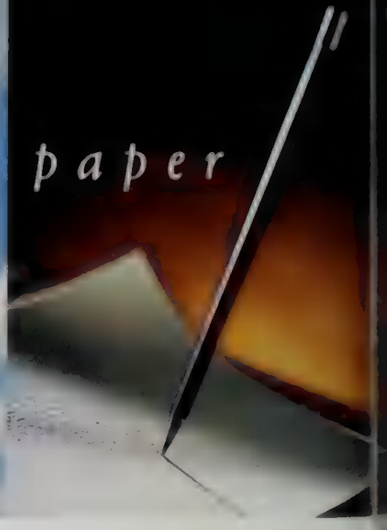
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CIRCLE 16 ON INQUIRY CARD



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CIRCLE 17 ON INQUIRY CARD

TADAO ANDO WINS FORT WORTH MODERN ART MUSEUM COMMISSION

With surprising speed and unanimity, the Modern Art Museum of Fort Worth has chosen Japanese architect Tadao Ando to design its new building. The announcement came only two weeks after six finalists presented their designs for one of the most prestigious architectural commissions of the decade.

Ann Marion, chairman of the museum's architecture review committee, said the members were "very moved by the beauty of Mr. Ando's concept, his responsiveness to our program, and his poetic handling of the site."

The announcement concluded six months of frenetic activity in which six architects (Richard Gluckman, Arata Isozaki, Carlos Jimenez, Ricardo Legorreta, David Schwartz, and Ando) competed to build across the street from Louis Kahn's Kimbell Art Museum. The scope of the project, and its proximity to one of the most significant buildings of the late 20th century, made for a coveted prize.

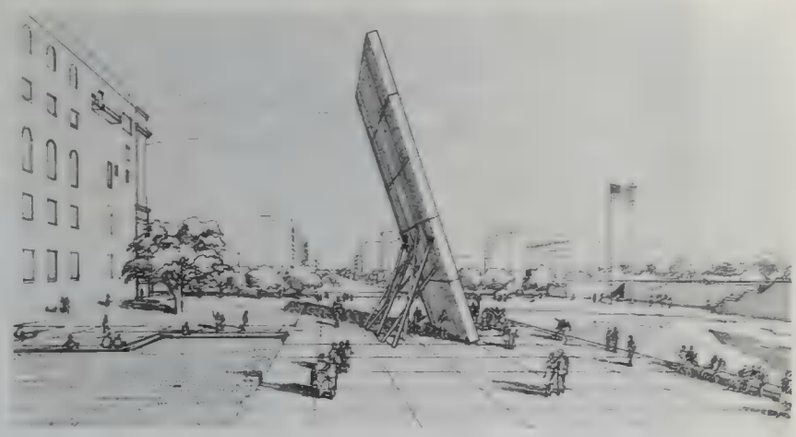
The new Modern, Ando's first significant public American commission, consists of six rectangular concrete-and-glass pavilions surrounded by a shallow reflecting pool. Temporary galleries, an education wing, offices, and public spaces will occupy the ground level, with the permanent collection and sculpture courts on the second. The pavilion roofs are broad and flat and supported at the ends by dramatic Y columns of approximately the same height as the Kimbell's vaults. The northeast corner of the 11-acre site will be a forest that both screens out the city and marks an oasis within it.

Ando's preliminary design calls for 230,000 sq ft of space, 75,000 sq ft for galleries. There is a possibility that both numbers might shrink once the museum staff reviews its programs and future needs. No budget or completion date was announced, though $70 million and the year 2002 are considered plausible estimates.

"When we all first met in Osaka," said the Modern's director, Marla Price, "the first thing Ando said was that he wanted to design a building that inspired artists and brought joy and inspiration to everyone who visited it. He set out right away to address those issues. The competition model shows that he continued to hold on to that vision." *David Dillon*



The Modern Art Museum of Fort Worth: designed to "inspire artists."



OKLAHOMA MEMORIAL COMPETITION HELPS TO HEAL COMMUNITY

All design competitions have drama, but none can match the emotional intensity of the Oklahoma City Memorial competition. Five finalists were announced April 19, the second anniversary of the bombing, in the presence of several hundred survivors and relatives of the victims. The announcement came five days before the opening of the Timothy McVeigh trial in Denver, which could wind up just as the winner of the competition is named.

"The competition has had a powerful healing effect," explained Kari Ferguson, communications director for the Oklahoma City Memorial Foundation. "The process has broken down all kinds of racial and economic barriers. People who had never talked to one another came together over this event."

The finalists were chosen from 624 entries from 50 states and 23 countries. They include young architects just out of school and seasoned professionals.

The competition called for a memorial "to commemorate those who were killed, those who survived, and those changed forever." The memorial will occupy a three-acre site formed by the footprint of the destroyed Alfred P. Murrah building and adjacent structures. A visitor center and an Institute for the Prevention of Terrorism and Violence will be added later.

The proposals of the five finalists range from spare, minimalist designs to intricate landscape and garden schemes.

J. Kyle Casper and Brian Branstetter of Dallas designed a long, narrow chamber containing 168 boxes inscribed with the names and birth dates of the victims. At noon on each victim's birthday, sunlight penetrates openings in the chamber wall and illuminates the individual memorial. Susan Herrington and Mark Stankard of Ames, Iowa, created an intricate sequence of lawns and gardens that terminates at a glass wall etched with the names and ages of the victims. Personal objects chosen by the families would be pressed between the layers of glass.

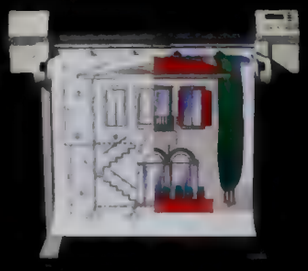
The centerpiece of the submission from the German firm Locus Bold Design is a field of 168 chairs, symbolizing the victims and providing a place for families and friends to leave personal remembrances.

Hanno Weber & Associates, Chicago, created a circular space at the epicenter of the bomb blast, with a lawn and spring inside the wall and 168 columnar cypresses on top of it. Richard Scherr and James Rossant of Brooklyn, N.Y., designed a 60-ft-high tilting wall (pictured above), inscribed with the names of the victims and symbolizing both the collapse of a building and the erection of a new one.

The finalists have until June 19 to refine their designs, including a model showing that they can be built within the $10 million budget. The winner will be announced [illegible] with completion expected [illegible] years. *David Dillon*

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AIA DELEGATES 'SHOOT DOWN' DUES HIKE AND TV ADVERTISING CAMPAIGN

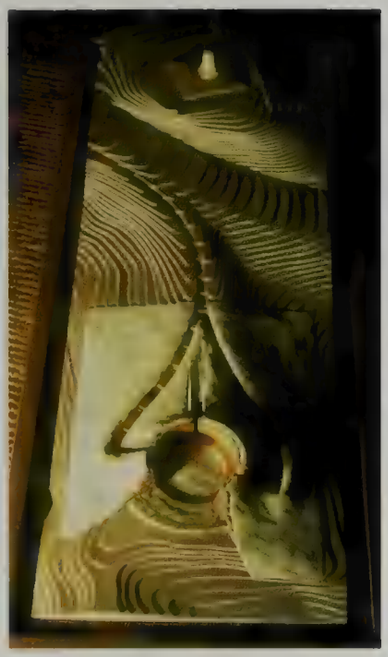
Delegates at the AIA national convention in New Orleans voted in a one-time $10 dues increase for 1998 and rejected a three-year assessment of $50 per year that would have funded a major television advertising campaign.

Despite a strong presentation of the dues assessment proposal by AIA Chief Executive Officer Terrence M. McDermott, Hon. AIA, and exhortations on the floor from four past AIA presidents, and the American Institute of Architecture Students president, the measure failed to get the two-thirds majority vote needed for passage. The $50 assessment would have paid for a $2.5 million-a-year television schedule of ads promoting the value of architects.

Swayed by arguments that the ad campaign needed more planning and by opposition from the AIA California Council (AIACC), more than a third of the delegates shot down the proposal. California delegates are fighting their own battle, a proposed amendment to their state constitution that would effectively allocate all public design work to state-employed designers [RECORD, May 1997, page 50]. AIACC, which recently raised state dues and wants to raise $1.2 million to fight the amendment proposal, was concerned that the national dues assessment would harm their membership recruitment/retention program. It was announced at the convention that the national AIA has committed $100,000 to the AIACC campaign against the state constitutional amendment.

In other convention business, delegates voted unanimously to support the Legacy Project, a program designed to leave something of lasting social value behind in the convention host city. This year the Legacy Project is a joint effort of AIA New Orleans, the city government, the national AIA, and local charity groups to build a shelter and support center for the homeless.

The total attendance of 8,700 AIA members and related professionals is considered high by AIA officials. Much of the increase was attributed to the 1998 AIA membership requirement for continuing education. The convention featured nine theme speakers, 84 seminars, and 22 tours among its continuing-education offerings.



This new memorial at the Little Bighorn Battlefield is for the American Indians who died there.

HUSBAND AND WIFE DESIGN NEW LITTLE BIGHORN MEMORIAL

A husband-and-wife team of Philadelphia architects has won the national design competition for an American Indian memorial to be built at Little Bighorn Battlefield National Monument in Montana. Alison J. Towers and John R. Collins, principals of Towers Collins Architects, received $30,000 for their entry, one of 554 submissions.

The memorial—a circular earthen berm with a ceremonial gathering space in the middle—will honor the Sioux, Cheyenne, and Arapaho Indians who fought against the U.S. Army in the Battle of Little Bighorn on June 25–26, 1876, as well as the Crow and Arikara Indians who fought with the army.

The site already contains a granite obelisk honoring Lt. Col. George Armstrong Custer and some 225 members of the 7th Cavalry who died in the battle, popularly known as "Custer's Last Stand." For years, Native Americans have argued that the victors should be recognized, too.

When Congress voted in 1991 to change the name of the site from Custer Battlefield National Monument to Little Bighorn National Monument, it authorized such a memorial.

Collins and Towers call their design "an elemental landform, recalling the ancient earthworks found throughout the continent." Visitors will enter the grass-covered berm from the east through a narrow passage. To the north, through an opening in the circle, they will see three larger-than-life sculptures of Indian warriors on horseback. On the southern rim will be a narrow gap cut through a stone wall. Through this "weeping wound," as the architects call it, visitors will be able to see the Custer obelisk, about 75 yards away, before exiting through a narrow passage on the west side.

"I like the concept of the weeping wound," says Dennis Sun Rhodes, president of AmerINDIAN Architecture in St. Paul, Minn., and one of the competition's seven jurors. "If it comes off right, I think it will have the same impact as the Vietnam Veterans Memorial in Washington, D.C."

The National Park Foundation, which put up the prize money for the competition, will now raise funds to pay for the memorial.

David Hill

LOS ANGELES AIRPORT EMPLOYEES MAY BRING THEIR KIDS TO WORK SOON **A $1.6 million Los Angeles Child Care Center designed by architects Marmol & Radziner of Santa Monica, Calif., will provide care for children of Los Angeles International Airport employees when it is completed later this year. Two blocks of playrooms for children six weeks to five years of age, an administrative wing, and a dining services building form a small village-like campus around a central playground and an entrance tower. The shape of the project is reminiscent of an aircraft ready for flight. A series of translucent canopies hover over the playground's grassy hills, sandboxes, and tricycle track, protecting the center's small charges from the Southern California sun. The client for the project is the City of Los Angeles Department of Airports.**



ARE MEIER, VIÑOLY, AND OTHER STARS COMPETING TO DESIGN STREET FURNITURE?

Few architects fantasize about designing public toilets. But when the stakes are high, as they are in the $1 billion superbowl of public street furniture contracts shaping up in New York City, even superstars will apparently compete.

"To enhance quality of life," New York City's Department of Transportation issued a request for presentation (RFP) in January 1997 for a coordinated franchise to install, operate, and maintain street furniture and to sell outdoor advertising.

The 20-year contract calls for a private company to be responsible for over 3,300 bus shelters, 330 newsstands, and at least 30 automatic public pay toilets. Over $100 million will likely be invested to build and maintain the furniture, with an estimated $50 million needed in the first few years, according to the RFP. The winner will sell advertising on each site, with the city collecting a percentage of the earnings, which could reach $1 billion over 20 years.

Several international outdoor furnishing companies have teamed with prestigious architects to design the street furniture. None of the proposers are talking publicly about participation for fear of ruining their chances. And city officials have also refused to discuss the matter or divulge names of submitting companies, their architects, the number of submissions received by the April 18 deadline, or the identities of those on the evaluation committee.

However, at least three major contenders and their "star architects" have been identified in local press reports and confirmed by people involved, speaking off the record. Michel [illegible], the British-based company, has selected [illegible]. [illegible] has created a team of [illegible]. Rafael [illegible] Partnership, Richard [illegible] Partnership, and Bill Williams and [illegible] have teamed with City Design & Development Group, has tapped [illegible].

While the selection will be made by city officials, a nonvoting design advisory committee, consisting of representatives from the AIA New York Chapter, newspaper, real estate, and civic organizations, will also review submissions.

Unlike the selection process for Manhattan's new Columbus Circle—where renderings of each developer's proposal have been made public—no information will be forthcoming on the street furniture designs until after the city awards the contract.

The local Municipal Arts Society will mount "21st Century Streetscape" from June 20 to September 12, an exhibit timed to coincide with the city's proposal. *Barbara A. Nadel, AIA*

CHANGES AND CONFUSION MARK MADRID AIRPORT TERMINAL COMPETITION

Frequent changes and confusion are causing dismay among some participants in a competition sponsored by the Spanish government to design a new terminal at Madrid's Barajas Airport. Among the 21 competitors are architects Richard Rogers, Santiago Calatrava, Ricardo Bofill, Frank Gehry, Rem Koolhaas, and Cesar Pelli.

Designs were to be presented in late May for a preliminary selection of finalists, although the schedule for awarding prizes and beginning construction has not yet been announced.

The contest threatens to repeat the confusion of the Ministry of Culture's competition to enlarge the Prado Museum last September, which failed to produce a clear winner. In the case of Barajas, this is the third competition brief presented to participants, incorporating changes that followed the victory of President Jose Maria Aznar of the conservative Popular Party, in national elections in March 1996.

The construction area has been reduced from 2 million to 1.4 million sq ft. While previous briefs specified differing terminal configurations, formal typology is left open in this edition. And most disturbing to those on the already long list of pre-selected participants, the contest has been open to other qualified contenders.

The changes have led at least one prominent contestant, Sir Norman Foster, to drop out of the competition. *David Cohn*



DAUGHTERS DESIGN BETTER CLASSROOMS On the fifth annual "Take Our Daughters to Work Day," held April 24, Perkins & Will Architects in Chicago hosted 30 girls ages 7 to 15, and promptly put them to work designing classrooms and hospitals.

"The day was a good way to show girls how to apply math skills and creativity in the real world," said Jessica Halem, a spokesperson for Perkins & Will. "The girls seemed particularly heartened to see growing opportunities for women in architecture," she added.

For the classroom prototype, the girls drew layouts, worked on computers, and chose color palettes, considered carpet samples, paint chips, flooring, and decorative laminates that would make classrooms not only attractive but conducive to learning. For the hospital design, they created three-dimensional models out of foam.

The 30 girls were the daughters and friends of female architects and support staff. And while the consensus among the young women was that their "fun" designs would result in better classrooms and hospitals, the verdict was unanimous that "all classrooms would be better without boys."

MICHAEL STANTON TO HEAD AIA IN 1999

Michael Stanton, FAIA, of Michael Stanton Architecture, San Francisco, is the American Institute of Architects' new president-elect for 1999.

Stanton says he has three goals for the AIA: leadership, advocacy, and vision. He is committed, he says, to providing architects with "tangible benefits" from their AIA membership, to integrating his goals into Institute decision-making, and to focusing on practitioner issues "first and foremost."

Stanton won a runoff election against L. Duane Grieve, FAIA, of Grieve & Ruth Architects, Knoxville, at the AIA Convention, May 18 in New Orleans.

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ARCHITECT PRINCIPAL IS WASHINGTON, D.C. SMALL BUSINESS PERSON OF YEAR



Deryl McKissack comes from a long line of architects and builders.

Deryl McKissack, president and CEO of McKissack & McKissack (M&M) of Washington, D.C., was named the Small Business Person of the Year for the Washington metropolitan area by the U.S. Small Business Association (SBA). It was the first time the award was made to the principal of an architecture firm, said Anita Irving of the SBA.

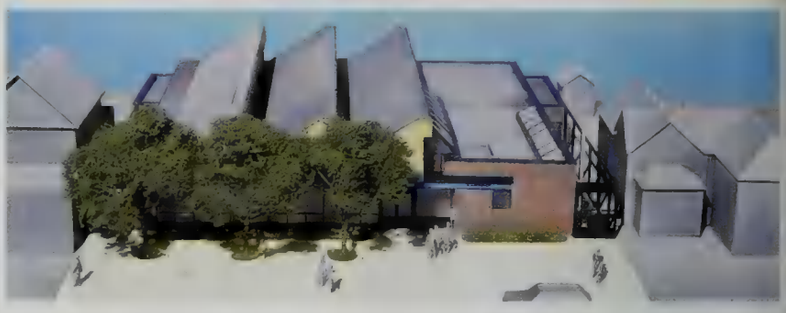
McKissack, who graduated from Howard University in 1983 with a degree in civil engineering and training in architecture, opened her firm in 1990 with one employee (herself), no clients, and $1,000 of her own money. Her firm's early years were lean; her accountant, she said, was appalled that she only cleared two to three thousand a year for the first three years of operation. "It's tough to get a line of credit until long after you need one," she explained. Today her line of credit is $330,000, and M&M employs 38 architects, engineers, computer specialists, an interior designer, and support staff. Estimated revenue is $7 million for the upcoming fiscal year, and there's a $100 million backlog of contracts, she said.

M&M is currently working on three separate contracts at the U.S. Treasury Building in Washington, D.C., which is being renovated following a 1996 fire. Other clients include Nationsbank; Georgetown, George Washington, and Howard Universities; the U.S. Department of Labor; the National Institutes of Health; and AT&T.

What advice does she have for architects and engineers considering opening their own shops?

"You have to bring other things to the table besides design and technical skills. You have to market aggressively. One of my favorite bits of wisdom from a CEO I admire is that the three keys to success are 'get business, get business, and get business.'"

McKissack comes from a distinguished family of architects and builders. In fact, she took the name of her firm, McKissack & McKissack, from the firm started by Moses McKissack, her great-grandfather and the son of a slave, in 1905 in Nashville, Tenn. *Julie Moline*

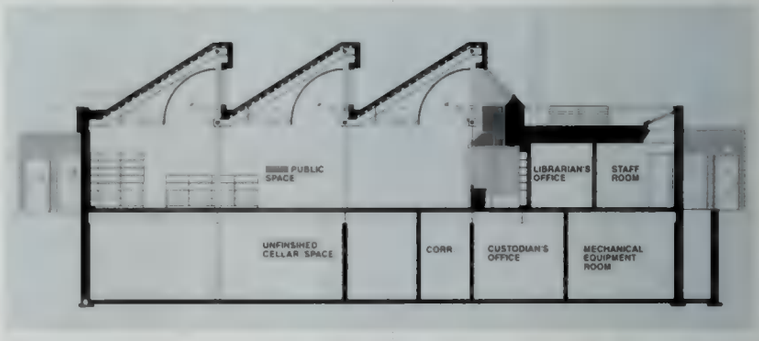


QUEENS, N.Y. LIBRARY TO SHOW 'GREEN' BUILDINGS BELONG IN PUBLIC SECTOR

A new library in South Jamaica, Queens, N.Y. has been designed to show that environmentally sensitive design has as much a place in the public sector as in the private—and that it can be as cost-effective as it is politically correct.

The 7,500-sq-ft South Jamaica Library, designed by The Stein Partnership, is part of a demonstration project sponsored by the New York City Department of Design & Construction (DDC) to help develop higher environmental performance standards in new and renovated municipal buildings, according to DDC spokesperson Hillary Brown.

Natural light will enter library through three clerestories.



"What public sector groups are coming to realize is that it's possible to commit to being a good steward of the planet and still be economically realistic," said Carl Stein, FAIA, partner of The Stein Partnership. "Less strain on operating expenses means funds can be used for programs, like hiring staff, or in the case of the library, buying books and computers," he added.

To save on energy costs, the library employs what Stein calls "a series of very conventional technologies" and uses them "in an integrated, interactive way." The roof uses lightweight steel trusses instead of conventional column and beam construction, which saves on materials and also reduces the load the roof carries. Natural light enters through three clerestories made of high-performance glazed materials. Control systems constantly adjust to take advantage of passive solar gain. Over two-thirds of lighting will come from daylight on a sunny day, Stein said. The building also is designed to separate hot air from cooler air before it is recirculated, saving on air-conditioning costs in summer and heating in winter. The library will open in spring 1999.

TWO AIA DOCUMENTS UNDER REVISION **Attendees at the AIA convention in New Orleans had the opportunity to examine two major AIA documents that are in the process of being revised. The revisions to Document A201, the General Condition of Construction Agreement, and Document B141, the Owner-Architect Agreement, are intended to accomplish four main objectives: emphasize dispute resolution using mediation prior to arbitration; increase flexibility to suit specific client project-delivery needs; increase the opportunity for clients to choose from an expanded array of architectural services; and provide a mechanism to limit consequential damages to all parties. Drafts of the new documents received generally favorable reviews from members, according to Mark McCallion, in-house counsel for the AIA contract documents program.**

McCallion stressed that the process of reviewing the documents is ongoing and that AIA members who were unable to attend the convention but wish to see the documents can have that opportunity by writing to the AIA at 1735 New York Avenue, NW, Washington, D.C. 20006. Comments must be received by July 1. The AIA Documents Committee, other AIA, and other construction industry representatives will continue working on the documents through the summer. It is expected that the documents will be published in the fall.

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NEW BILINGUAL LIBRARY AND RECREATIONAL CENTER FOR SAN JOSE

The largest Spanish-language collection of materials in Northern California will be housed in a new bilingual library and recreational center to be built one mile south of downtown San Jose. The two buildings, Biblioteca Latinoamericana and the Washington Area Youth Center, were designed by Steven Ehrlich Architects of Santa Monica, California, and will share a 75,000-sq-ft, T-shaped site in a neighborhood of commercial and residential streets.

To identify the complex as a focal point of community activity, the buildings employ similar materials and forms, and share a shaded central courtyard, accessible from both structures via roll-up glass doors. Each building comprises three masonry masses of concrete block and brick that are unified by metal and glass cladding on the lower portion of the walls.

The executive architect for the project is the local firm of Garcia Teague Architecture + Interiors. Patricia O'Brien Landscape Architecture is the landscape architect. The buildings will be completed by October 1998. *Abby Bussel*



The two buildings share a 75,000-sq-ft, T-shaped site one mile south of downtown San Jose.

WOOD MANUAL OFFERS TOUGHER DESIGN FOR HOUSES TO WITHSTAND HURRICANES

In the wake of the massive destruction wrought by Hurricanes Andrew in 1992 and Hugo in 1989, a dozen states in the South are expected to approve a new manual for designing wood-frame houses to withstand 90- to 120-mile-per-hour winds. The manual is published by the American Wood Council.

In January, Florida became the first state to approve the manual, which provides wind-load prescriptions that are alternatives to those in Standard Building Code 1606.2, published by the Southern Building Code Congress International.

The manual was published in March in the Standard Building Code 1997 edition as a recognized reference document, said Jeffrey Stone of the American Forest and Paper Association, of which the Wood Council is a division. Stone said there is a "good chance" the manual may also be included in a planned unified design code, which could consolidate by the year 2000 the Standard, National, and Uniform Building Codes.

The manual offers design solutions to reinforcing structural systems in one- to three-story buildings against gale-force winds. It examines ways of "transferring wind loads from the structure to the soil via connections, uplift, and shear walls," Stone said. Using the manual adds about 5 percent to the cost of a house, if it is not already being designed to withstand wind load.

The full title of the manual is "Wood Frame Construction Manual for One- and Two-Family Dwellings, 1995 SBC High Wind Edition (WFCM-SBC)." It is available by calling 800/890-7732.

ARCHITECTURAL PRESS ROUNDUP

PARIS IN LAS VEGAS

U.S. News & World Report, April 21, 1997 In case you missed it amid the hullabaloo surrounding the opening of the New York-New York Hotel and Casino, another city, Paris Las Vegas is being built just down the road. Columnist Stephen Budiansky is underwhelmed by this "city of lights" in the desert: "The planned groundbreaking later this month for Paris Las Vegas, a half-scale replica of the city of lights complete with Opera House, Seine, and a 50-story-high Eiffel Tower, is unlikely to make much of a dent in the overall weirdness quotient of Las Vegas. (From the Great Pyramid, pass King Arthur's castle and downtown Manhattan on the left and look for the first European city on the right; if you hit a British naval battle, in progress, you've gone too far.)" When the French find out about this, they may pull out of NATO.

WILL DETROIT RISE AGAIN?

The Detroit News, April 13, 1997 For anyone who has ever lived in Motor City and still feels affection for this tormented town, news that it's on the way back can only be greeted with a mix of skepticism and hope. According to a *Detroit News* analysis, the current wave of investment in the city is unprecedented in the last three decades and "adds up to a $5.5 billion building boom that is transforming neighborhoods from the Grosse Point border to the Cass Corridor to the Ambassador Bridge."

THE ROYAL FAMILY BLUES

The Irish Times, April 10, 1997 The British royal family just seems to have a thing for the macabre. Consider this report after a cousin of the Duke of Norfolk and part-time sculptor tutor at Prince Charles's Institute of Architecture was arrested in possession of 30 human body parts. "Mr. Anthony-Noel Kelly, a butcher turned sculptor, won critical recognition for his molds of heads, feet and torsos. Some of his works gilded in silver and gold, sold for thousands of pounds. . . .Police launched an investigation. . .after an art lover allegedly recognized a deceased man in one of Mr. Kelly's sculptures exhibited at the Contemporary Art Fair in a London gallery. The sculptor had used a mold of the man's head showing part of his brain cut away."

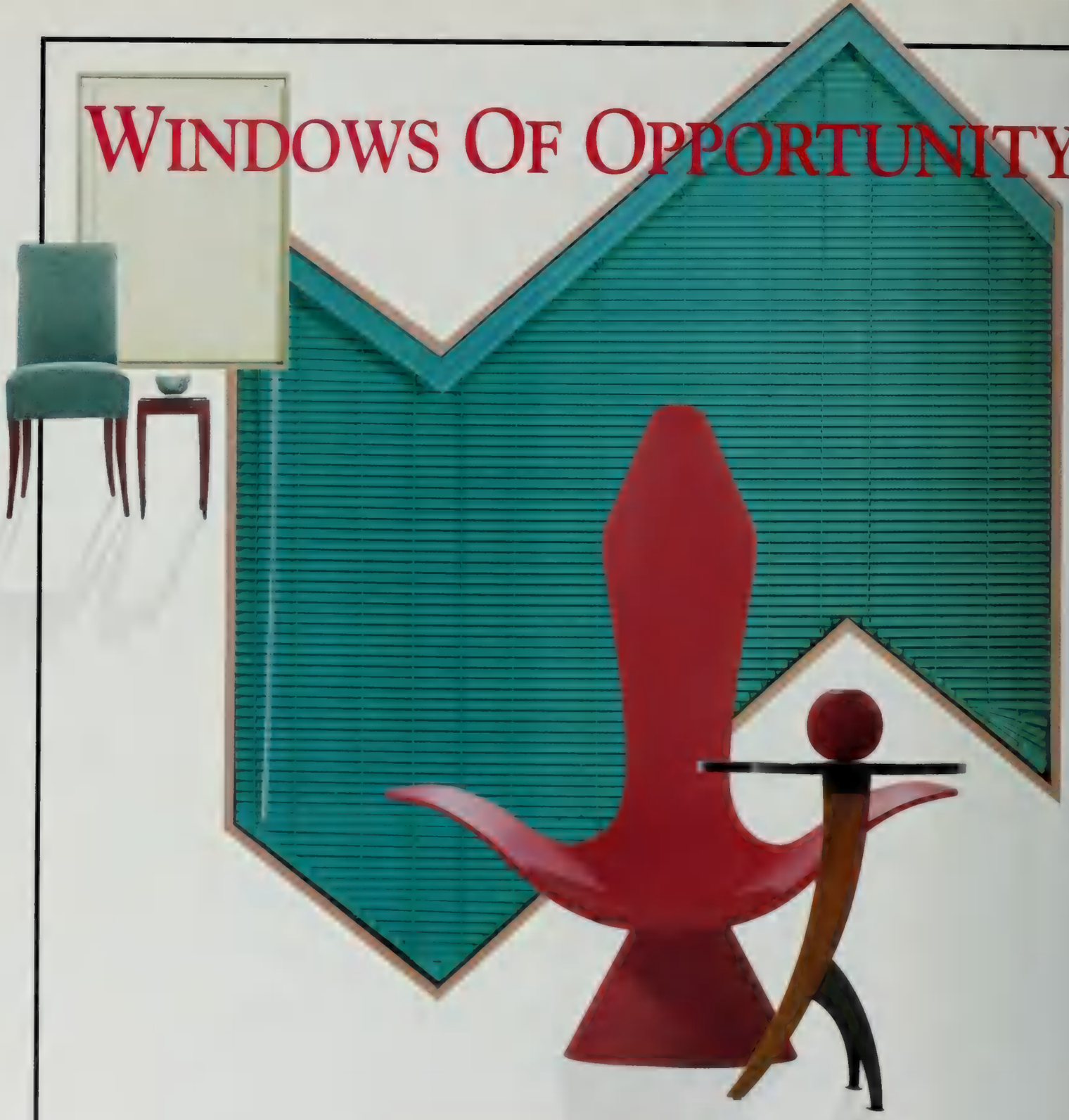
MOST INFLUENTIAL FOLKS OF 1997

Time, April 21, 1997 Of course, Tiger Woods made it, and so did Don Imus, Rosie O'Donnell, and Andrew Weil. We're talking about *Time*'s Most Influential People in America for 1997. Others on the list include Steve Coz, editor of the *National Enquirer*, Chris Carter, creator of "The X-Files," Robert Earl, CEO of Planet Hollywood, and Dilbert, the cartoon character. Not a single architect was selected. Are the editors of *Time* trendy conformists? Or is the profession in need of good P.R.? Or are architects just not influential?

100 AMERICANS FOR THE NEXT CENTURY

Newsweek, April 21, 1997 The ubiquitous Tod Williams, 53, and Billie Tsien, 47, turn up as the only architects among *Newsweek*'s "100 people to watch as America prepares to pass though the gate to the next millennium." Not that we are swayed by the inclusion of this husband-and-wife team, but in the battle of newsmagazine lists-that-sell-copies, we think *Newsweek* is the clear winner.

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F.W. DODGE RESTRUCTURING TO MEET NEEDS OF CHANGING INDUSTRY

F.W. Dodge, the largest provider of construction-project news in the country, is reorganizing much of its reporting system and will consolidate its news-gathering network into six regional sites and approximately 35 reporter locations.

The reorganization is in response to changes in the way construction projects are being delivered and to new technology, explained Rock Rickert, director of editorial methods, strategies, and planning for F.W. Dodge. Dodge is a part of The McGraw-Hill Companies' Construction Information Group, which also includes RECORD, *Engineering News-Record*, and the Sweet's Group.

New factors are changing the construction scene. The growing use of design-build, and other construction delivery systems, together with the increasing penetration of computers and the Internet into the construction industry are transforming the way Dodge's customers do business, said Rickert.

Dodge will increase its coverage of design-build projects, private-sector projects, and projects during the predesign phase. The company plans to report on predesign and early life-cycle stages in 90 percent of projects it covers, up from 4 percent.

Dodge has also developed a new personal, computer-based information system that it calls DodgeNet, replacing the Dodge Construction Information System (DCIS), which was mainframe-based. "The new technology will allow us to automate more news gathering," explained Rickert. It will also allow the company to support on-line retrieval and delivery of construction information.

The new system will organize information by the 16 construction industry standards categories and may eventually allow architects supplying information to Dodge to be able to check and update that information at their convenience.

"We retooled our sourcing strategy," stated Rickert, "so we have more face-to-face time with the top 1,000 architectural firms and the 6,000 most active private owners in the country."

Dodge will roll out the changes on a region-by-region basis, starting in June and finishing in early 1998. The changes will reduce the number of Dodge reporters from about 620 to approximately 460 in January 1998.

The company expects to spend about $4 million on new technology for the system and between $8 million and $10 million for the changeover as a whole. *Clifford Pearson*



FIRST SKYSCRAPER MUSEUM OPENS IN NEW YORK **The first museum devoted to the skyscraper opened in lower Manhattan last month, amid some of the tallest and best-known examples of the building type.**

"The most famous New York monument is the skyscraper," says Carol Willis, the founder and director of the Skyscraper Museum. "It's the reason why people come to visit lower Manhattan." Nearly two million people visited the observation deck of the World Trade Center last year, just a few blocks from the new museum.

Housed in a vacant banking hall on the ground floor of 44 Wall Street, a 1926 skyscraper by Trowbridge and Livingston, the museum features an inaugural exhibition entitled "Downtown New York: The Architecture of Business/The Business of Architecture." The 5,000-sq-ft exhibition space is being donated, at least through the end of August, by The New York Life Insurance Company, which owns the building. The museum may have to move after that, depending on the owner's ability to rent the space.

The debut exhibition includes scheduling charts and bidding books from contractors, a 60-ft-long photographic "mosaic" of lower Broadway by Claude Samton (pictured above), and models of several New York towers. The exhibition was designed by Lynne Breslin.

Willis, adjunct professor of architecture at Columbia University and author of *Form Follows Finance: Skyscrapers and Skylines in New York and Chicago*, has been the driving force behind the museum. Her favorite skyscraper? "The Empire State Building," she says. "It's the most extraordinary, and at the same time, most typical of skyscrapers." *Clifford Pearson*

GREAT AMERICAN MAIN STREETS ARE HONORED

The National Trust for Historic Preservation presented its annual Great American Main Street Awards™ to five communities at its 1997 National Town Meeting on Main Street™ held in Portland, Ore.

Sponsored by the financial services firm Edward Jones, the awards recognize civic and economic revitalization efforts in towns and cities of all sizes.

The winners were Burlington, Vt., for the redevelopment of its commercial district; DeLand, Fla., in recognition of initiatives that decreased the town's office and retail vacancy rate from 75 percent to full occupancy; Georgetown, Tex., for a revitalization program that involved the adaptive reuse of Victorian buildings and other historic structures; Holland, Mich., where the refurbishment of its crumbling infrastructure was enhanced by the installment of the country's largest heating/cooling system under streets and sidewalks; and Libertyville, Ill., for the transformation of its downtown from a landscape of neglected and vacant buildings to a high-occupancy, retail urban core.

IS THE LAVISH ARCHITECTURE BOOK AN ENDANGERED SPECIES?

Are large-scale, lavishly produced coffee-table books on architecture going the way of hot type? A recent shakeup in the once-rarefied world of art-and-architecture publishing has some people concerned.

In the past three years, there have been several major sales, including the recent purchase of Harry N. Abrams, Inc., formerly owned by Times Mirror Company, by French publishing concern Groupe Latingy; plus several would-be sales, such as Academy Editions, which has been on the block for more than a year; and a few reorganizations, including Stewart Tabori & Chang, which went on a hiatus in 1995 before resuming publishing following its purchase by U.S. Media.

Publishing experts are mixed on the significance of the reshuffling. John Ray Hoke, Jr., publisher of AIA Press, thinks that the price points for lavishly illustrated, consumer-oriented books are too high, and the field is too crowded. "The only way to eke out a profit is either to concentrate on reference books or on text-based books that don't require much color," he said.

But others disagree. "The Abrams sale was an isolated event," said Judy Quinn, book news editor of *Publisher's Weekly*. "There was a change in regime, and the new publisher expected a 12 to 13 percent profit for books that typically averaged between 3 and 4 percent. Meanwhile, there are plenty of other publishers doing popular books on architecture. We haven't seen any reduction of books in this category."

Harry N. Abrams's CEO, publisher, and editor-in-chief, Paul Gottlieb, concurred. "I don't think the architecture book is a dying breed," he told RECORD. "But I do think that the audience has become more and more discriminating." *Julie Moline*



OBERLIN TO GET CUTTING-EDGE ENVIRONMENTAL STUDIES BUILDING

A new environmental studies facility, conceived as a model of advanced ecological design, is planned for Oberlin College in northeast Ohio. Designed by William McDonough + Partners of Charlottesville, Va., the $5 million Adam Joseph Lewis Center for Environmental Studies is to be "a laboratory for closed-loop sustainability and a model for what the human role in the natural environment ought to be," explained Professor David Orr, chair of the Environmental Studies Program.

Predicated on the idea that, as in nature, "waste equals food," the facility's building systems, according to the architect, will have both "products of consumption," materials designed to decompose safely, and "products of service," materials and systems that are returned to the manufacturer for disassembly and reuse.

There is no question that there are still technical limitations that will prevent a total completion of a "sustainable loop," Orr acknowledged. However, the building will incorporate many experimental



Oberlin's new building will be a "lab for closed-loop sustainability."

technologies along with more proven ones. A natural waste-water treatment facility called the Living Machine will be monitored and maintained by students. The roof's rising curve will improve the performance of photovoltaic panels by tilting them toward the sun. It is expected that nearly half of the building's energy needs will derive from this source. The lower portion of the roof on the north side of the building will be covered with grass for fast absorption and slow release of storm water, while providing thermal and acoustical insulation.

The project team includes Lev Zetlin Associates, New York City; Steven Winter Associates of Norwalk, Conn.; and landscape architects John Lyle of Pomona, Calif., and Andropogon Associates of Philadelphia. Groundbreaking is set for this year with completion by spring 1999.

CLOCK TICKS AS ARCHITECTS FILE FOR AIA CONTINUING EDUCATION LEARNING UNITS

As of April 30, transactions by architects filing for AIA Continuing Education Credit Learning Units through the self-report, question-and-answer forms in RECORD had totaled 8,946. The system requires architects to answer questions in response to designated articles in each issue of the magazine.

"The AIA is very pleased at the overwhelming response to the RECORD /AIA Education Series," said Mark Scher, the AIA's director of professional education.

Practitioners who have not fulfilled their learning unit requirements to date may complete the self-report forms associated with RECORD articles dating back to May 1996. The submission deadline is December 31, 1997. Each article is worth two continuing education learning units for AIA members. Continuing education articles in past issues of RECORD are the following:

May 1996 "Defensive Glazing" (page 34)
June 1996 "Community Buildings" (66, 68, 88, 96)
July 1996 "Pacific Rim" (28, 34)
August 1996 "Overcoming Pitfalls in Product Literature" (50)
September 1996 "Quiet Progress in Managing Environmental Toxins" (48)
October 1996 "Merging Virtual Technologies Changes the Rules of Collaboration" (46)
November 1996 "Is There a Quiet Place in the Alternative Office?" (54)
Decenber 1996 "Knowledge-Based Production Facilities" (23)
January 1997 "High Performance from Start to Finish—Marvin Windows" (147), "Designing and Engineering the Future—APA/ Engineered Wood Association" (158), "Metal Roofing Fundamentals" (161)
February 1997 "Specifying Wood Windows and Doors" (121), "Prudential Healthcare: An Office Lighting Case Study" (154), "How Do We Wire the Ever-Changing Office" (173)
March 1997 "Restoring Wright's Wingspread" (80)
April 1997 "Designing Houses" (133)
May 1997 "Offering Unique Contributions to Health, Safety, and Welfare in Architecture—National Wood Window & Door Association" (189), "New Tools in Fire Protection" (207)

To order back issues, send a check or money order and designate the month and year of issue(s) requested to ARCHITECTURAL RECORD Order Desk, Room 4188, 1221 Avenue of the Americas, New York, New York 10020-1095. Each issue is $8 (add $3 for shipping in North America and $10 for shipping abroad for each copy of the magazine).

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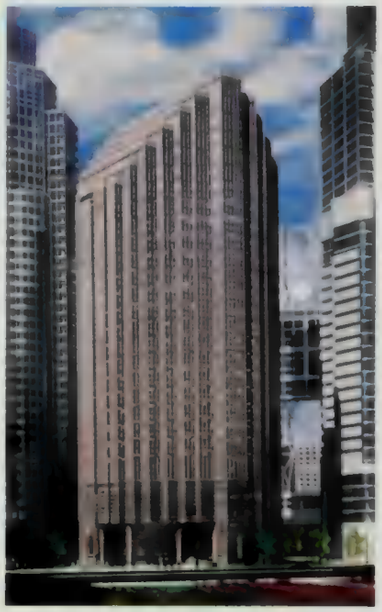
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CIRCLE 28 ON INQUIRY CARD

NEWS BRIEFS

Rome Prizes announced The American Academy in Rome has announced the winners of its 101st annual Rome Prize Competition, with 24 prizes going to practitioners, artists, and scholars in 10 arts and humanities discipline areas. Fellowships in architecture were awarded to Daniel Castor of San Francisco, and Catherine Seavitt of Detroit; design arts fellowships went to Paul Davis of New York City, and Mark Schimmenti of Knoxville, Tenn.; fellowships in historic preservation and conservation were won by Shelley Fletcher of Washington, D.C., and Frederick Steiner of Tempe, Ariz.; and in landscape architecture, prizes were awarded to Elise Brewster of Berkeley, Calif., and Mary Margaret Jones of San Francisco. Prize winners receive stipends, as well as living accommodations and work opportunities in Rome for periods of six months to two years.

Jeff Sydness' winning design for an office tower in Shanghai, China.



Former Johnson Burgee partner wins Shanghai project Jeff Sydness, a former partner at John Burgee Architects (the successor firm to Johnson/Burgee Architects), has won an invited competition for a 25-story office tower in Shanghai, China, beating out Norman Foster Associates of London, and two other firms. The 500,000-sq-ft Lujiazui/Itochu Building will occupy a site in the heart of the Lujiazu Finance and Trade Zone in the Pudong area.

American Academy announces winners The American Academy of Arts and Letters presented its annual architecture awards to Daniel Libeskind and Henri Ciriani at an award ceremony in New York City. The Peruvian-born Ciriani, who has practiced in Paris since 1964, received the academy's Brunner Prize. Libeskind, who practices in Berlin, received the Academy Award in Architecture. Jurors were Henry N. Cobb, Frank Gehry, Charles Gwathmey, Ada Louise Huxtable, and Richard Meier.

Mies van der Rohe award goes to Bibliothèque Nationale The Bibliothèque Nationale in Paris, the city's new central library by French architect Dominique Perrault, is the winner of the fifth Mies van der Rohe Pavilion Award for European Architecture, a biannual prize honoring works of conceptual and technical merit.

FDR memorial now in cyberspace From its design to its content, the new national memorial to Franklin Delano Roosevelt, dedicated in Washington, D.C., last month, has been the subject of much debate. Designed by Lawrence Halprin and five artists and located on a 7.5-acre site between the Tidal Basin and the Potomac, the memorial has been criticized for its failure to acknowledge the late president's disability, and for the scale of the 12-ft granite walls that form its four outdoor rooms. The National Park Service has produced an on-line tour of the memorial at http://www.nps.gov/fdrm/index2.htm.

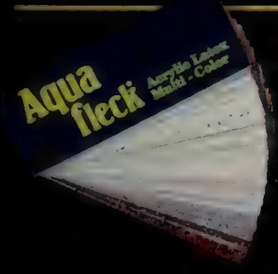
(News Briefs continue on page 46)



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(Briefs, continued from page 44)

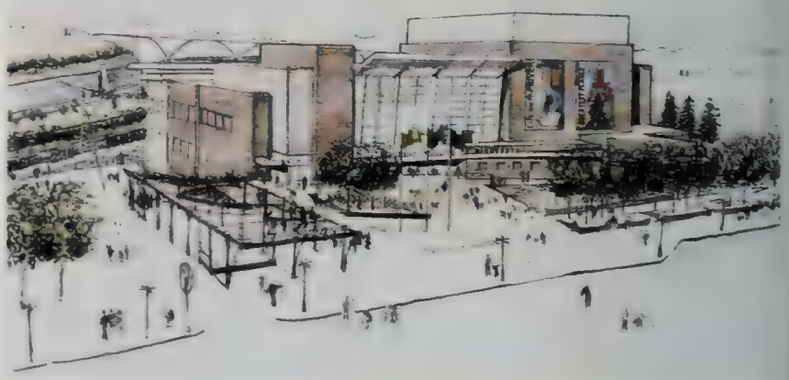
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Young architects competition winners Responding to the theme "Vision Medium Culture," nine architects were honored in the 15th annual Young Architects Competition, which is sponsored by the Architectural League of New York and open to designers 10 years or fewer out of school. The winners, are David Guthrie of Houston; Kelly Shannon of Denver; Kyna Leski of Providence, R. I.; partners Monica Ponce de Leon and Nader Tehrani of Boston; partners Frederic Levrat and Zolaykha Sherzad of New York City; and David Lewis and Paul Lewis, partners, New York City.

New leader for New Urbanists Shelley R. Poticha has been named executive director of the Congress for the New Urbanism (CNU), succeeding Peter Katz, the founding executive director, who is stepping aside July 1 to pursue new career opportunities. Selected from a field of 15, Poticha will serve a two-year renewable term. "The Board is unanimous in its enthusiasm and support for Shelley," said Elizabeth Plater-Zyberk, chairperson of the CNU Board of Directors. Poticha was an urban planner for seven years with Calthorpe Associates in Berkeley, Calif. More recently, she has worked for CNU as a policy coordinator.

Science museum breaks ground in St. Paul Construction of the new Science Museum in St. Paul, Minn. is under way. Scheduled to open on New Year's Eve 2000, the new building was designed by Ellerbe Becket of Minneapolis for a 16-acre site on St. Paul's riverfront. The seven-story building will house exhibition spaces, a collections vault, lab spaces for cleaning and restoration work, classrooms, facilities for data storage and CD production, and an IMAX/Omni theater.

Schuller Corporation renamed Johns-Manville Returning to its roots, the Schuller Corporation of Denver, Colo., founded in 1858, has decided to rename itself Johns-Manville Corporation, following a recent brand-identity survey of its customers. ■



The Science Museum in St. Paul is scheduled to open New Year's 2000.



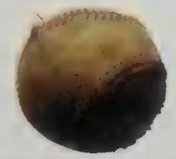
CIRCLE 25 ON INQUIRY CARD

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CIRCLE 26 ON INQUIRY CARD

Calendar

June 16–19
Pennsylvania Convention Center
Philadelphia
A/E/C Systems 97, billed as the largest computer show for design and construction, will be held in conjunction with Construction Technology 97 and other building-industry events. Call 800/451-1196 or 610/458-7689, fax 610/458-7171, or visit http://www.aecsystems.co.

June 24–October 19
Cooper-Hewitt Museum
New York City
"Do-It-Yourself Architecture for the Great Outdoors" looks at the advanced materials and innovative tectonics of tent design; ten commercially available tents will form an "urban campsite" on the museum's grounds. Call 212/860-6868 or visit http://www.si.edu/ndm/.

June 25–28
Hyatt Regency Minneapolis
Minneapolis, Minnesota
The Annual Meeting and Conference of the National Council of Architectural Registration Boards (NCARB) will include regional meetings, workshops, and business sessions. To register, contact NCARB, 1735 New York Avenue, N.W., Suite 700, Washington, D.C. 20006, tel. 202/783-6500, fax 202/783-0290.

June 25–September 14
Whitney Museum of American Art
New York City
Five unbuilt projects presented through original drawings and newly constructed models are on view in "Frank Lloyd Wright: Designs for an American Landscape," a traveling show. Call 212/570-3600.

June 26–29
Orange County Convention Center
Orlando, Florida
The Construction Specifications Institute has announced its 41st annual convention and exhibition. For registration and exhibitor information, call [illegible]

Through July 6
Museum of Modern Art
New York City
"Toward the New Museum of Modern Art: Sketchbooks by Ten Architects" presents the results of an invited competition initiated by the museum for its planned expansion and renovation. On view are portfolios, sketchbooks, and models by the three competition finalists (Bernard Tschumi, Yoshio Taniguchi, and Jacques Herzog and Pierre de Meuron) as well as the seven other participants (Wiel Arets, Steven Holl, Toyo Ito, Rem Koolhaas, Dominique Perrault, Rafael Viñoly, and Tod Williams and Billie Tsien). Call 212/708-9400 or fax 212/708-9889.

August 8–10
AIA Chapter Headquarters
Seattle, Washington
The Fourth Annual Diversity Conference unites architects, designers, students, educators, AIA leaders, and allied professionals in an exercise to expand mutual understanding, explore cultural issues, and activate an appreciation of diversity in the people and policies of the AIA and the profession. Call 800/242-3837.

Through August 10
Wexner Center for the Arts
Columbus, Ohio
The traveling exhibition "Viewing Olmsted: Photographs by Robert Burley, Lee Friedlander, and Geoffrey James" examines work by the most influential landscape architect of the 19th century. The result of a seven-year project organized and commissioned by the Canadian Centre for Architecture (CCA), the show presents 150 photographs selected by curator David Harris from the CCA's collection, which includes more than 900 images of 74 Olmsted projects. Call 614/292-0330.

August 18–20
Westin Hotel Seattle
Seattle, Washington
The annual conference of the Illuminating Engineering Society of North America (IESNA) will include more than 50 author-presented paper sessions on the latest research in design theory, measurements and controls, photometry, daylighting, energy, calculations, and roadway lighting. Educational seminars will cover topics from indirect lighting techniques for the office to design and construction costs. A new products and services display is scheduled. Contact IESNA, 120 Wall Street, 17th floor, New York, N.Y. 10005, tel. 212/248-5000, fax 212/248-5017.

Through August 24
National Building Museum
Washington, D.C.
Sponsored by the Washington Chapter/AIA, "Capital Visions: Architects Revisit L'Enfant" offers proposals by more than 20 local architectural teams who were invited to reinforce or reinterpret their city's master plan. Call 202/272-2448 or visit http://www.nbm.org.

Through August 29
The Skyscraper Museum
New York City
"Downtown New York: The Architecture of Business/The Business of Building" at 44 Wall Street is the inaugural exhibition at the Skyscraper Museum, which was founded by architectural historian Carol Willis. The show, which was curated by Willis and designed by architect Lynne Breslin, looks at the skyscraper, both historic and contemporary examples, as a real estate investment, a product of the building industry, a symbol of corporate identity, and a place of work. Call 212/968-1961.

Through September 2
Montreal Museum of Decorative Arts
Montreal, Quebec
With more than 200 objects from around the world, "Designed for Delight: Alternative Aspects of Twentieth-Century Decorative Arts" attempts to document "the diverse aesthetics, beyond functionalism and rationalism, that have informed and designed modern design." The inaugural exhibition in the museum's new building, designed by Frank O. Gehry & Associates, will travel to museums in North America and Europe. Call 514/259-2575.

Through January 4, 1998
National Building Museum
Washington, D.C.
Visitors to "Main Street Five-and-Dimes: The Architectural Heritage of S. H. Kress & Co." will see re-creations, through photo-murals and artifacts, of a lunch counter and merchandise display cabinets, as well as company documents and architectural drawings of the stores. Kress maintained an in-house architecture division that designed standardized interiors and site-specific exteriors for each store. *America's 5 & 10 Cent Stores: The Kress Legacy* (Preservation Press, a division of John Wiley & Sons) by Bernice L. Thomas is published in conjunction with the show. Call 202/272-2448.

(continued on page 196)

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Architect Richard Smith grew up in Montana's Flathead River valley, exploring its forests, paddling its lakes and streams and marveling at the abundance and variety of its wildlife. So when he was asked to design a home perched above the waters of Flathead Lake, his inspiration was the majestic bird that makes its home in the same idyllic setting: the osprey.

Since the windows would be the key element in creating the look of a bird in flight, Richard spoke with all of the top manufacturers. More than one claimed they were impossible to build. Others were eliminated from consideration because their solutions compromised the design. Still others, because they couldn't provide the low maintenance finish the owner requested. Only one company rose to the challenge. Marvin Windows & Doors.



True to Richard's vision, yet mindful of builder Len Ford's timetable, Marvin's architectural department began designing the windows and creating the necessary production specifications. But a change in [illegible] became necessary when the owner brought up his concerns about the frequent high winds coming off the lake. So Richard designed [illegible] steel framework for the window openings and Marvin produced [illegible] glazed units with custom radii. Clad in the company's exclusive [illegible] aluminum, the windows conform to A.A.M.A. 605.2-92 standards;

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lespite their unusual, non-standard
:onfiguration. Another 63 Marvin windows
ınd doors in various shapes and sizes were
ılso installed in this extraordinary home.

In the end, Richard Smith and Len Ford were as impressed with the
›rocess as they were with the product. And today, "the osprey house"
s a required part of every boat tour of Flathead Lake.

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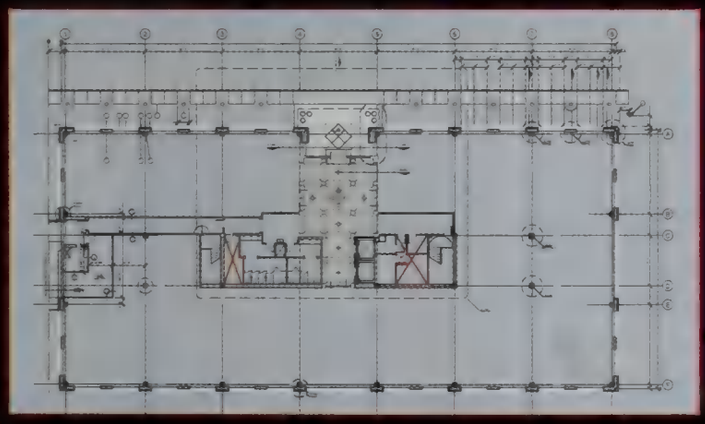
CIRCLE 31 ON INQUIRY CARD

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Way to Design

—Audience Vote at the Designers CAD Shoot-Out

MiniCad went toe-to-toe against architecture-specific CAD programs nearly six times as expensive—and came out on top—at the first-ever Designers CAD Shoot-Out for Architectural CADD Systems. In this advent of "architecture as a spectator sport," the audience at Boston's World Trade Center awarded MiniCad 6, fittingly, six first-place awards:

- Most Cost Effective
- Easiest to Use
- Best at Cross-Platform Operation
- Best Floor Plans
- Best Elevations
- Best Sections

MiniCad also placed a close third in the Overall Winner category (garnering 21% of the audience vote compared to Arris' 25% and ArchiCad's 24%), beating out AutoArchitect, Microstation Triforma, AllPlan, Architrion, and DataCAD. Even more impressive: MiniCad was the only software program running on both a Macintosh and a Windows machine during the event.

This recent success is not surprising. For years MiniCad has been the top-selling CAD program on the Macintosh, winning industry awards worldwide. And the reviews for the recently released Windows version have all been emphatic.

To find out more about the CAD Shoot-Out or how A/E/C professionals in more than 80 countries have used MiniCad to build everything from a luxury high rise to a hockey arena, houses, decks, hotels—even to help reconstruct Shakespeare's historic Globe Theatre—check out our web page (www.diehlgraphsoft.com) or call 1-800-874-5076.

Special offer for readers of *Architectural Record:* For a limited time, you can purchase MiniCad 6 direct for $595. You'll also get 18 months of free tech support and a 90-day money-back guarantee. MiniCad 6 supports Windows 95, NT, 3.1, and Macintosh OS.

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CIRCLE 32 ON INQUIRY CARD

RECORD's 4th Annual COMPUTER DELINEATION AWARDS

ANIMATION TOOK CENTER STAGE IN THIS YEAR'S AWARDS FOR THE USE OF THE COMPUTER AS AN IMAGING TOOL.

Three-dimensional computer-imaging tools—modeling, rendering, and animation—have been among the most demanding and challenging of computer technologies, but the 1997 ARCHITECTURAL RECORD Computer Delineation Awards show that mastery of these technologies is increasingly common. RECORD began the awards program a short four years ago to see if the powerful tools then under development would really change the way architects designed or the buildings they produced. Indeed, winners in this year's contest (this and following pages) have offered evidence that computers help architects realize design in new ways. It now appears that designers are applying their skills to the design of World Wide Web sites and to virtual modeling. Is the computer-design world that architects inhabit seeing yet another sea change? The awards commentary, page 66, asks whether architects—the design heirs-apparent for the increasingly three-dimensional virtual world—are up to the challenge.

Animation Category Winner

Project: *Professional Football Facility*

Delineator: *Digital E/Ellerbe-Becket—Stan Chiu, Jon Niemuth, Mike Hnastchenko, Jon_Niemuth@ellerbebecket.com (E-mail)*

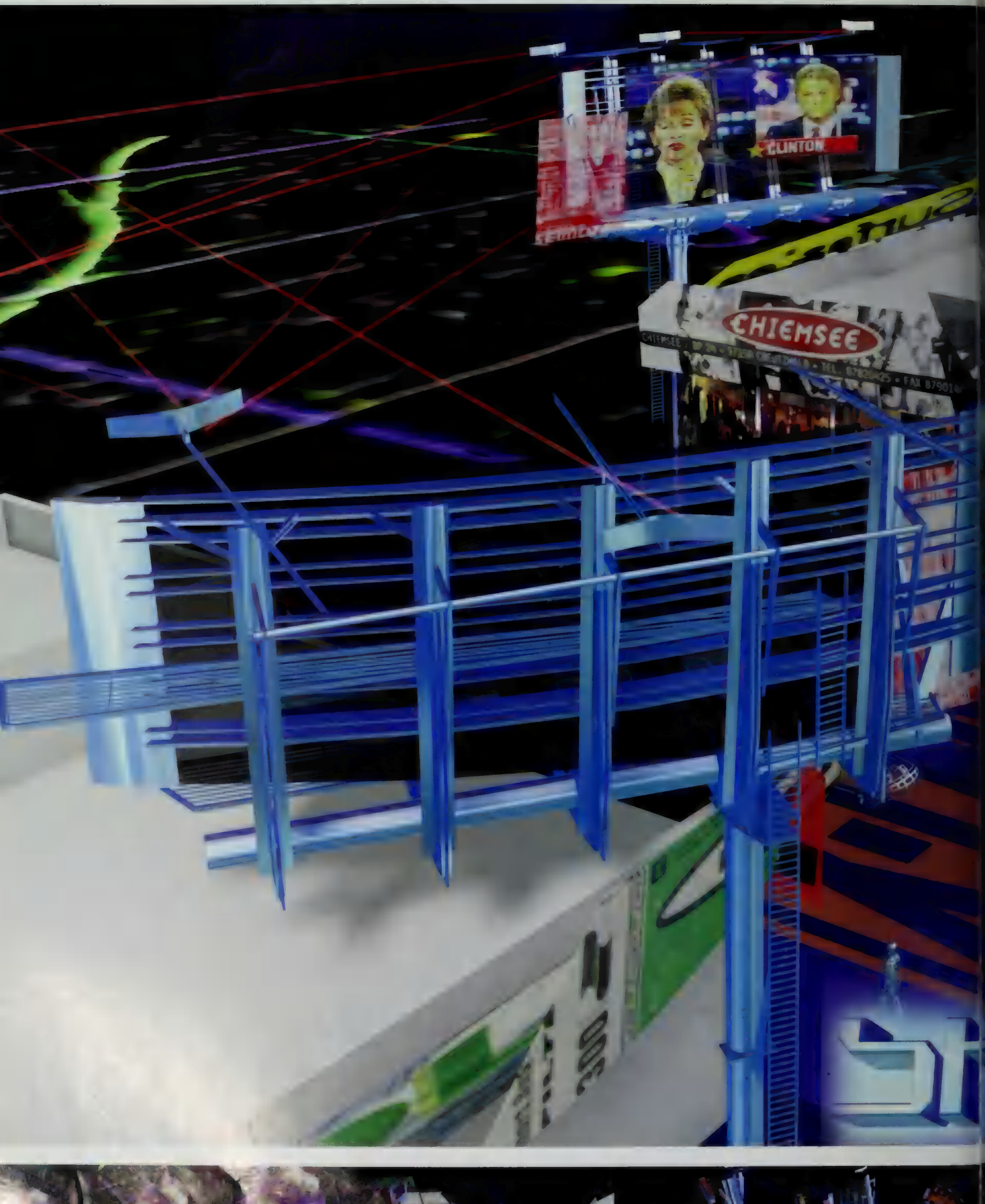
Computer: *Compaq DeskPro 120-133, Micron Millennia Pro2 400 Plus*

Software: *Autodesk AutoCAD R12 and R13, Autodesk 3D Studio R4, FAST VM Non-Linear Plus System*

When computer animation is combined with television-commercial-style graphics and jump-cutting techniques, the result is a very powerful selling tool, which the jury found this entry to be. The animation was created to show a preliminary proposal for a sports stadium in hopes of landing the job. The viewer moves from a long night shot of the glowing facility across a river, along a suspension bridge, and into a slowly circling aerial [illegible] searchlight beams. The animation then takes the viewer into the [illegible] space past full-motion video billboards and screens. The [illegible] television scenes of triumphs past (montage at top of [illegible]). The panel found such video-editing techniques to be very persuasive. "[illegible] of stadium entries," commented juror Charles Capobianco, "[illegible] with anticipation." Also, noted juror James Carpenter, "[illegible]. The design team did not win the job, however, [illegible] audacity. The music soundtrack combined selections from [illegible] with the climatic moments of the choral work *Carmina Burana*.




00:04:01:12
00:04:06:19
"We saw a lot of stadium entries, but this one really built anticipation."
—juror Charles Capaldi
to the jungle
jungle
ELLERBE BECKET


CLINTON
CHIEMSEE



Animation Category Winner

Project: *E-space*

Delineator: *Struere—Hraztan Zeitlian, principal designer, team leader, video art director; Karnig Ohannessian, project manager; Michael Amaya, designer, CAD delineator, animator, video editor; Rashmi Vasavada, designer, computer modelmaker; Jason Sweers, designer, graphic designer; Michael Lutz, physical modelmaker*

Computer: *Dell Pentium Pro 200*

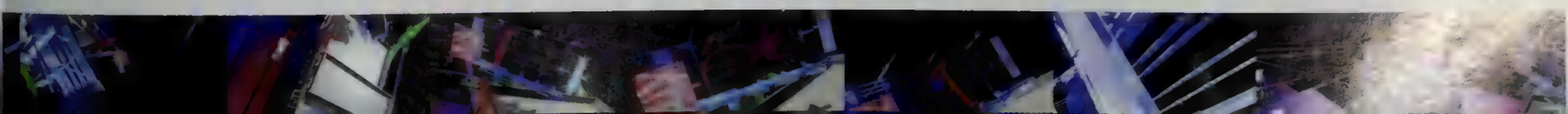
Software: *Autodesk AutoCAD R13, Autodesk 3D Studio, Adobe Premier, Adobe After Effects*

Struere calls itself "a group engaged in experimental research as a non-commercial extra-curricular activity." The team developed this entry from a design for a UCLA architecture-school competition for a new kind of public space, and acknowledges NBBJ Sports and Entertainment for making software and hardware available. (The animation itself, however, was not entered in the UCLA competition.) The jury gave this project an award because of its success in using the capabilities of computer rendering and animation to explain the project.

Designer Hraztan Zeitlian calls the entry "a public space for the age of digital technology and the age of Internet space." The scheme relies on elegantly detailed video billboards erected above conventional one-story strip commercial buildings. Inspired by the gigantic but static billboards of Hollywood's Sunset Strip, "the animated information is framing the space," Zeitlian explains. The "storefronts" are simple, collaged images; the neighborhood is rendered as a lighted grid, reminiscent of the patterns of a video chip, and laser beams stab into the sky, which flashes in apocalyptically bright colors. On the billboards themselves, video images are translucent and move as the "camera" wheels around the site and pans around the individual objects. The montage (bottom) conveys a sense of the way the scenes were constructed. The video goes beyond the design in depicting a slightly menacing yet atmospheric place. "It's a hyper presentation," commented juror Capaldi, "but it fits the project." Juror Sean Daly agreed: "The hyperrealism effectively conveyed the project. It approaches music-video production values."

"The hyperrealism effectively conveyed the idea of the project. It approaches music-video production values."
—juror Sean Daly





Animation Award (honorable mention)

Delineator: *Michael Sechman Associates—Michael Sechman; Production City (production services); Curtis Sly (audio). www. msechman.com (Web site)*

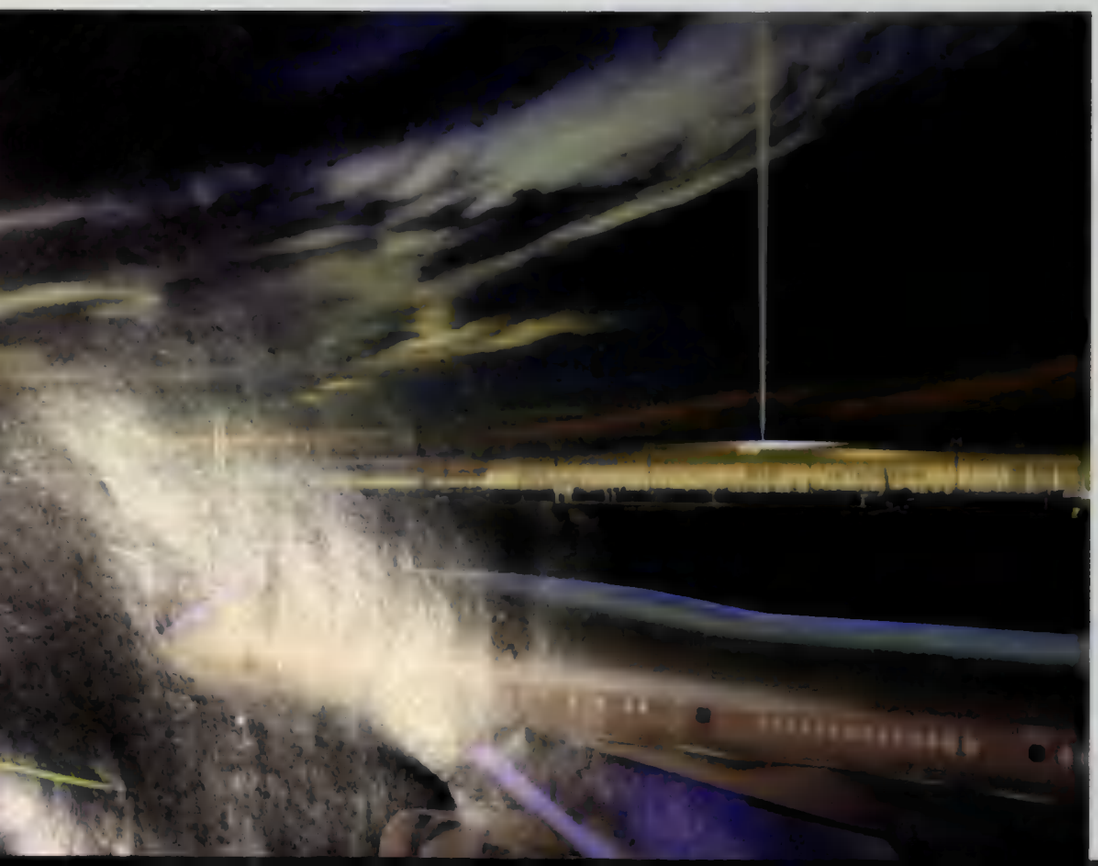
Computer: *IBM P6*

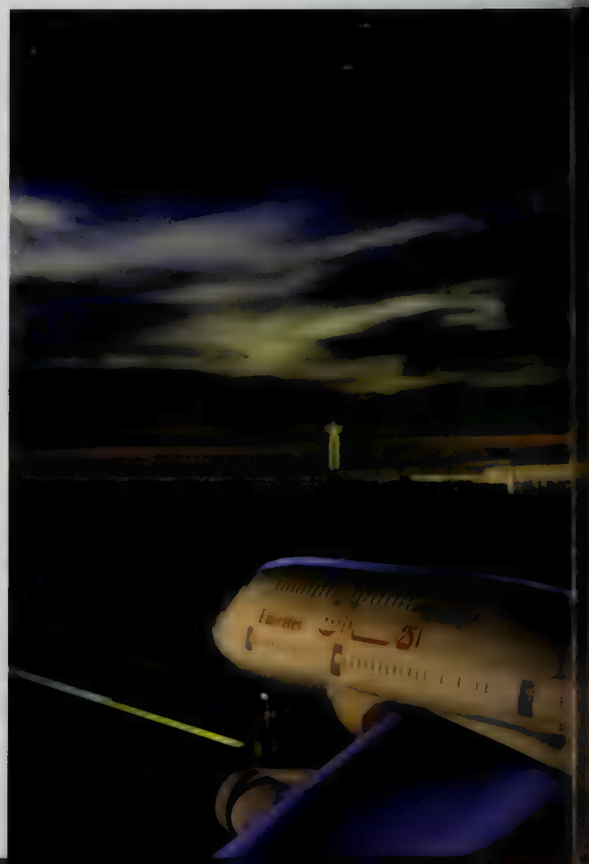
Software: *Autodesk AutoCAD R12, Autodesk 3D Studio R4*

This winner's Orinda, Calif., business is to provide imaging services to design firms, having animated the work of architects including Cesar Pelli and Kaplan McLaughlin Diaz. It seems ironic that such firms rarely win in the Computer Delineation Awards, but the reason is that juries often find a slick sameness in these presentations. What the jurors admired most in this entry was a sequence describing an airport terminal designed by Bechtel for Dubai, in the United Arab Emirates. The terminal's ovoid shape is intended to reach across the desert landscape, and the animation inventively portrayed the idea by having the "camera" follow a plane as it lands (sequence, bottom), then taxis to the gate. The animation then follows the path of a passenger through a lofty atriumlike concourse (opposite middle and top) and up to a ticketing area under the vaulted roof (right).

This sequence was one of several animations the entrant submitted, and the jury found that too many looked assembled from today's 3D kit of parts. One walk-through beautifully captured the sunlight- and shadow-dappled quality of a skylit airport terminal, but house plants and too-standard scale figures made it hard to focus on the inventive spaces and sequences being portrayed. Likewise, jurors appreciated the rendering of semitransparency in glass and the reflective quality of metal on a skyscraper, but an animated helicopter added a gratuitously distracting touch. What set Dubai apart, commented juror Capaldi, is that the airplane point of view, "with the lights flashing, and circling around the building," drew the viewer in. "So many entries simply panned around the building. It's the kiss of death." Added juror Daly, "Dubai was appealing because it was done in the evening, which conveyed the architectural idea well." The panel awarded the entry an Honorable Mention, because as Daly observed, "It wasn't as sustained" as the other animation winners.



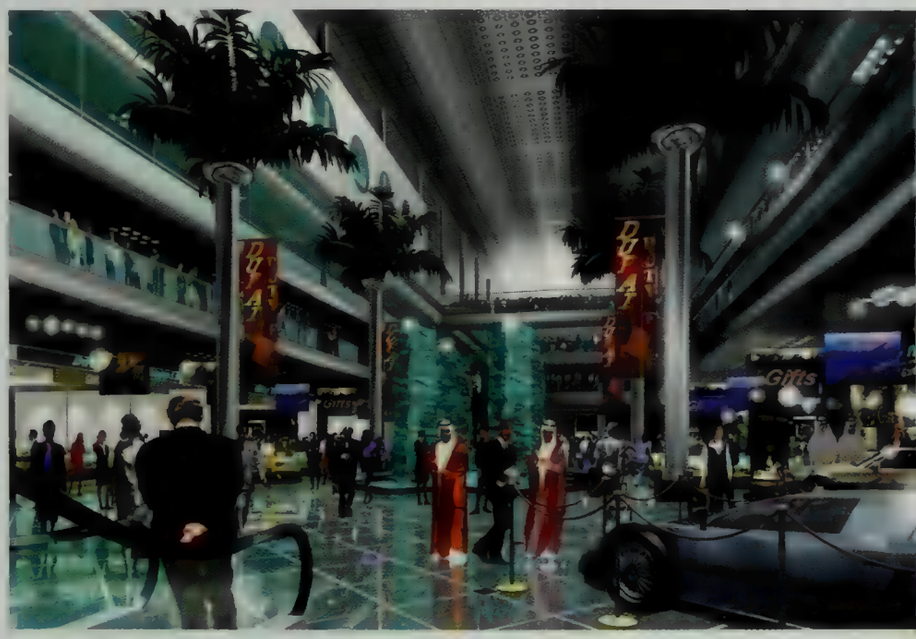


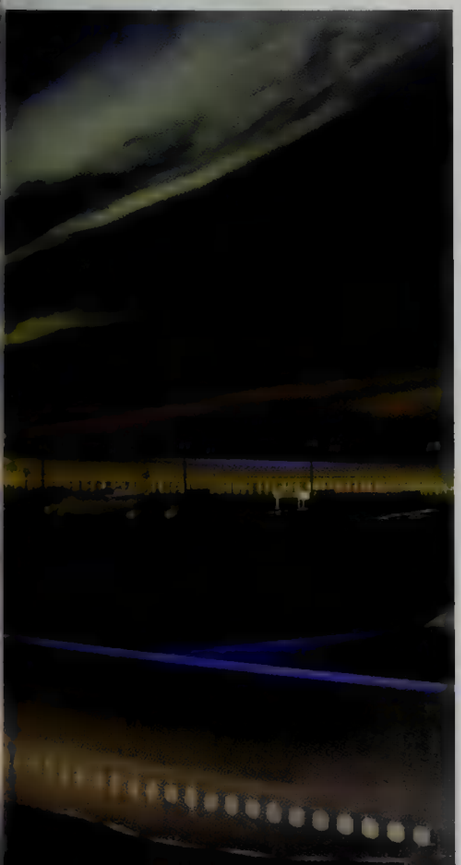






"Dubai was appealing because it was done in the evening, which conveyed the architectural idea well."—juror Sean Daly









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CIRCLE 33 ON INQUIRY CARD

Still-Image Award
Delineator: *David Quenemoen*
Project: *Times Square hotel/retail complex*
Computer: *Zeos Pentium 133*
Software: *Autodesk AutoCAD R12, Autodesk 3D Studio 4, Adobe PhotoShop*
Output: *Tektronix Phaser 480 printer*

A much-discussed entry by a student from the Harvard Graduate School of Design, this rendering was appreciated for being softer and more impressionistic than most. (It is for a Times Square hotel and retail complex in New York City.) "It's a simulation rather than a rendering," commented juror Daly. "If there is one thing computer renderings do well," he continued, "it's that level of precision—how materials meet and are bathed in light." He admired this departure from the norm.

The entrant softened the hard-edged quality that comes naturally to computer renderings, which caught the attention of panel members. They felt this entry began to take on some of the artistry in mood and idea that had too rarely been seen in others. This image was discussed in tandem with several others that were much more saturated in color and more literal in their depiction of materials and light. "In terms of photorealistic presentation," argued Daly, "you expect a nuanced and sophisticated presentation of materials, and some others conveyed that better." Replied juror Capaldi: "I liked this one because I am finding I'm tired of the kind of 'chrome' renderings we've seen. It's more suggestive than purely descriptive."

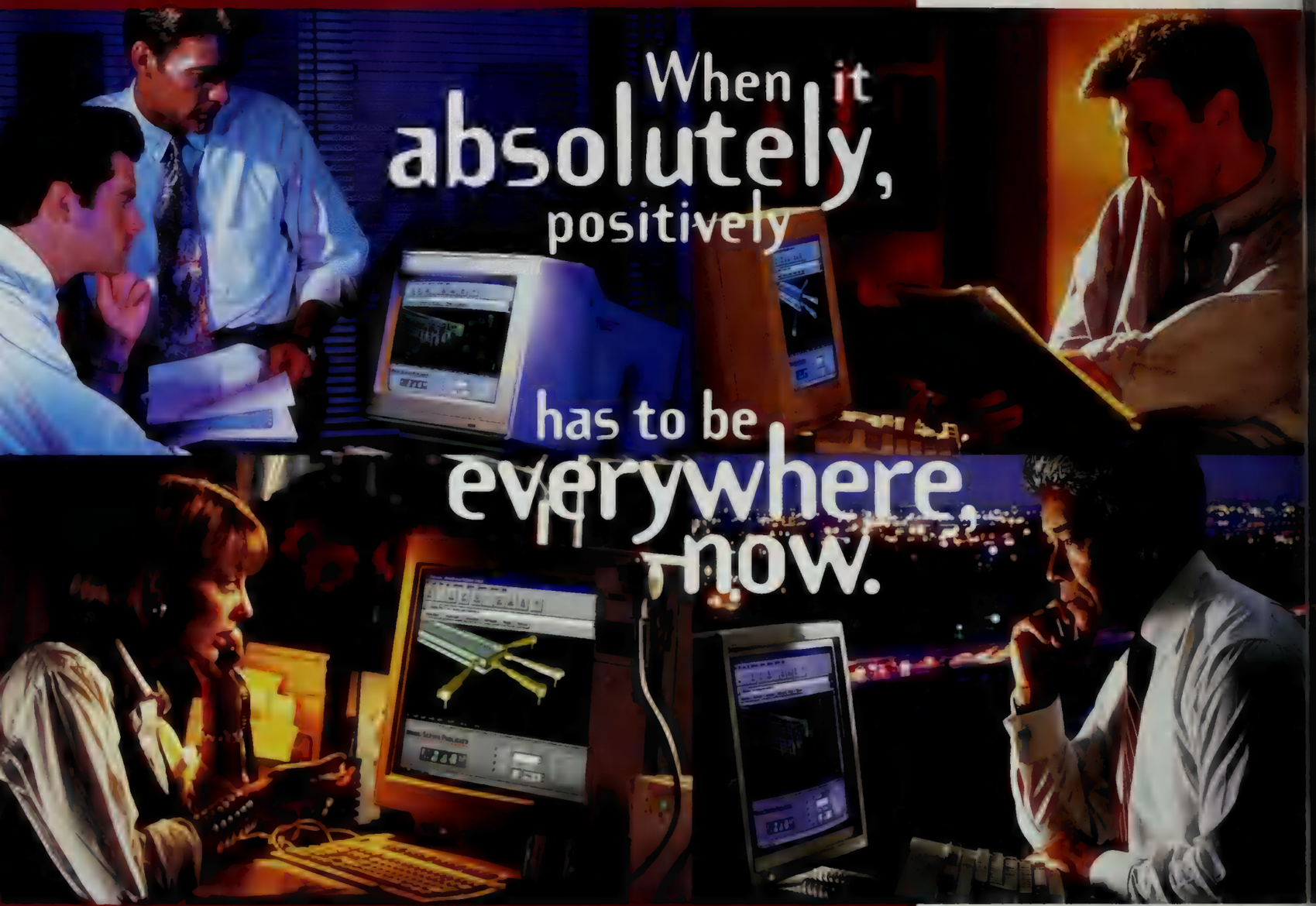
Still-Image Award
Delineator: *Mark K. Zimmerman with Chris Heinz, architect*
Project: *Save a Connie Air Museum*
Client: *Save a Connie, Inc.*
Computer: *Tri-Star Starstation*
Software: *Autodesk AutoCAD R13c4, Kinetix (Autodesk) 3D Studio Max, Adobe PhotoShop 3.05*
Output: *Management Graphics Sapphire, Encad Novajet Pro 50*

The entrant delineated an interior space of a proposed museum devoted to aircraft history. The museum will honor the Lockheed Constellation (or "Connie"), a popular commercial airliner of the propeller-driven era. The site is the downtown airport in Kansas City, Missouri.

Jurors admired the descriptive qualities of the rendering, because of the thoroughness and accuracy of its depiction of artifacts as well as space. But they also felt there was a subtlety in handling the many sources of light that caused this entry to rise above others. The rendering combines outdoor light filtered through an airframe with indoor electric light used to illuminate artifacts. Unlike so many other entries, the reflections are limpid rather than too obvious, too icy and hard-edged. The jury thought this quality helped the viewer appreciate the design. "You feel the real quality that the exhibition is intended to have," commented juror Carpenter. The panel also felt a real "hand" at work: Elements and objects were rendered with the amount of detail best suited to their importance in understanding the image.

Times Square hotel/retail complex





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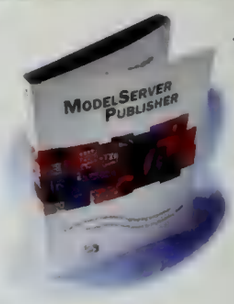
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CIRCLE 34 ON INQUIRY CARD



Save a Connie Air Museum

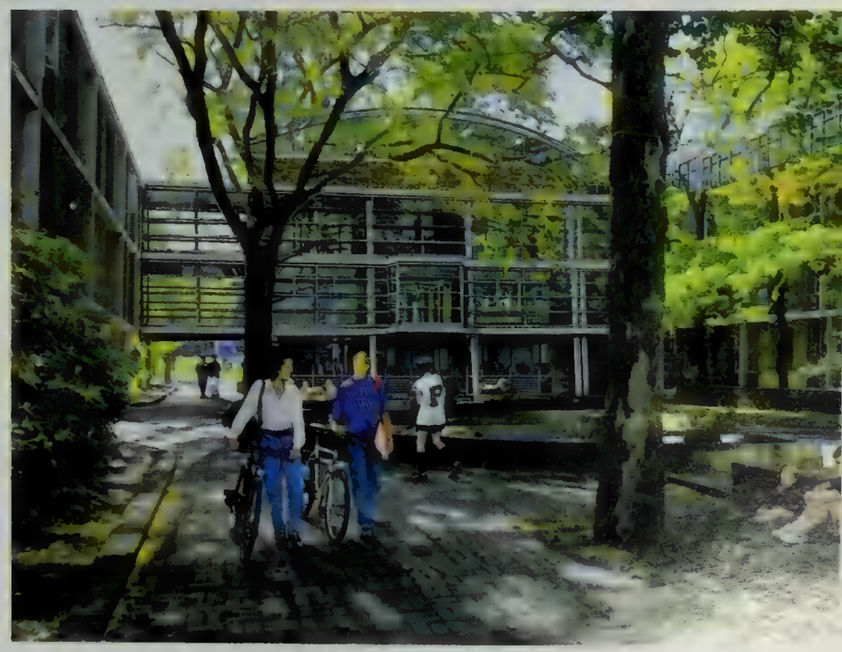
Still-Image Award

Delineator: *Eric Brightfield/Image Fiction*
Project: *Frances W. Parker School*
Client: *Dirk Danker of Nagle Hartray Danker Kagan McKay, Inc.*
Computer: *Power Macintosh 8100*
Software: *Virtus VR, Adobe PhotoShop 3.0*
Output: *Fiery/Ricoh 5006*

This image was probably discussed more by the jury than any other. While critical of some aspects of the rendering, panelists felt that it used imaging tools well to convey the idea of the architecture. "Letting the building be in the background was probably successful in terms of what the client sought," said juror Carpenter. "Others we looked at were less successful because the hyperrealism so often depicted is not how you actually see."

"It's among the most instructive renderings," commented juror Capaldi, "because it shows the shadowy, quiet, cloisterlike quality of the space. It's suggestive and gives a representation rather than just being a rendering." The delineator's evident skill in the use of the technology (his imaging business was formerly a subsidiary of Chicago architectural firm Holabird & Root) caused jurors to question those elements that didn't quite measure up. The dappled quality of the foliage was admired, but the sometimes too-contrasty shadows cast on the paving were not. Panelists appreciated the long view afforded through the building opening but thought the placement of the figures with bicycles was unfortunate.

Frances W. Parker School

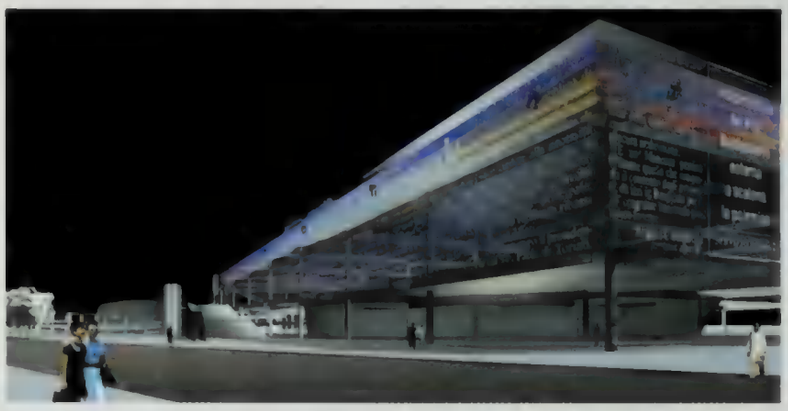


AWARDS COMMENTARY: Have Designers Not Set Their Aspirations for the Computer High Enough? By James S. Russell

A kind of technological conservatism came over the nearly 200 entrants in this, ARCHITECTURAL RECORD's fourth Computer Delineation Awards. Entries resembled more those one sees in the American Society of Architectural Perspectivists' awards program than the cutting edge of digital imaging. Especially in the Still-Image category, entrants were searching for ways to use computer-imaging technology to closely convey the look of a project once completed. There is nothing wrong with using the computer as a tool in this way. Indeed, the basic competence of nearly every image submitted suggests that the technology has become much easier to master.

But our jurors hoped for more, and generally didn't find it. "We looked for projects that transcended technical ability, that reached a level of artistry or communicative rendering of the project," commented Sean Daly, a principal at Windtunnel, an imaging and animation firm based in New York City. "We saw very few." Too many entries, said Charles Capaldi, a Philadelphia-based principal of architecture and design firm B5 Studios, "almost looked like tempera renderings." James Carpenter, of Manhattan, a designer known for his stand-alone artworks in glass and metal as well as collaborations with architects, admired projects that used the computer to show a progression or transformation but found many entries wanting "in their lack of materiality."

There was other evidence of the maturing of these technologies—their more accessible tools and affordable sophistication—and architects' ability to use them. In both the Still-Image category and the Animation category, many of the entries had been created essentially for sales purposes—to assist the client in understanding a project, to lure potential buyers (or, in the case of one convenience-store walk-through, potential franchisees), or to build community or political support for a project. Jurors found more invention in the Animation entries; indeed, animation is so powerful a tool of persuasion that the editors created a separate category for it, as judges increasingly have found it difficult to compare animations to still images. (The contest also received many more Animation entries than ever before.)



"Outward Boundaries," delineated by Luke Fox, Kevin Kennon, and Peter Moore.

Imaging becomes a powerful selling tool

One is forced to hypothesize, but the less-exploratory nature of many of this year's entries tells us something about the way architects are using computer technologies in their practices. When the magazine began the contest, modeling, rendering, and animation software was just beginning to reach a cost-to-functionality ratio that made it accessible to a wide range of architects. Now, much of the software is well established—indeed the uniform look of many entries suggests that some tricks and tools have already become computer-visualization clichés. The powerful hardware needed to render and set images in motion is also far less costly, so more architects have become adept at creating animated tours of projects.



"Phelan Four Poster," (convertible loft bed) delineated by Lee Montana of InFORM design.

Measuring up

Since so many entries were clearly intended as delineations in the classic sense—that is, they are meant to describe as clearly as possible projects that the client intends to build—jurors judged them largely on such criteria. For example, jurors appreciated Eric Brightfield's winning rendering of the Frances Parker School because it expressed the architect's apparent intention to make a background building, but they also found shortcomings in the placement of scale figures and the evident inaccuracy of some of the light and shadow effects.

One project discussed at length was for a courthouse, which was immaculately rendered but "could have been made 30 years ago with traditional means," according to juror Daly. Typifying reaction to many entries, juror Capaldi commented, "It doesn't do anything wrong. But it doesn't do anything right, either. It's a little stillborn, which goes with the building depicted."

Another project debated by the jury was a proposal for a convertible bed (above). Jurors admired the straightforwardness of the rendering and its description of the way the furniture piece is capable of being transformed. With its careful attention to materials, it little resembles a "computer" rendering.

This kind of image begs the question of where architects are willing to take computer imaging, especially as other possibilities open up, such as three-dimensional Web sites and "places" made by virtual reality modeling language (VRML). Since working in three dimensions is where architects' skills lie, will they be players in these emerging technologies or sidelined because they can use computers only to imitate older presentation styles? ■

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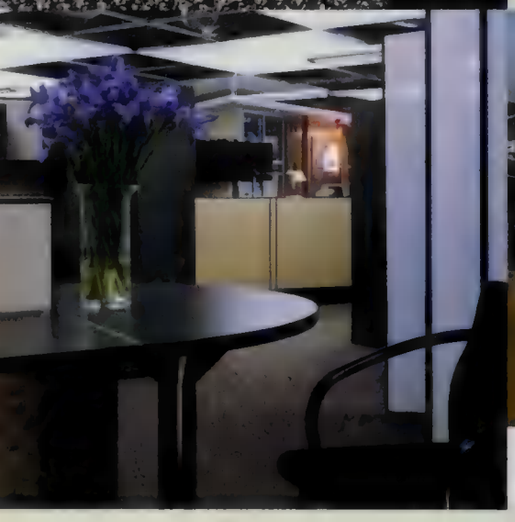


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CIRCLE 38 ON INQUIRY CARD

For Office Buildings, Now Is The Right TIME FOR CHANGE

- THE MINI-BOOM IN SPECULATIVE OFFICE BUILDINGS
- A "GREEN" TOWER SET TO RISE IN TIMES SQUARE
- HOW SUSTAINABLE ARCHITECTURE RESTORES INTEGRITY AND INFLUENCE TO THE PROFESSION

Three Articles Explain Why

CONSTRUCTION IS UP, BUT DEVELOPERS ARE CAUTIOUS

by Peter Slatin

There's good news and bad news. The good news is that construction is up practically across the board. The glut of office space that blanketed the nation in the wake of the 1980's development frenzy has, more quickly than had seemed possible, been overtaken by demand. From Boston to San Francisco and Dallas to Minneapolis, new, largely speculative office construction is under way. The bad news is that architectural design is down. Indeed, the design of most of the spec-office development going up is of the cookie-cutter variety.

Thanks to a resurgent economy, the return of the office building market is not an isolated phenomenon. New multifamily housing, hotel, and even retail projects have begun to crop up as well.

New projects remain small to keep risks low

Still, real-estate analysts are refraining from applying the boom label at present, pointing out that in most cases new projects remain small in scale and are somewhat isolated, with relatively little other construction taking place around them.

The developers on the scene are also changing their approach to design in concert with the scaled-down risk and proportions of their projects. And, of course, budgets have shrunk as well, eliminating large lobbies, expensive materials, and, in many cases, innovative design.

A good example of the kind of development going up these days is a group of office buildings on a large site in southeast Denver's Tech Center neighborhood. Eventually, say the developers, they will put up a half-dozen 100,000-sq-ft spec office buildings on the land they control, but only as need arises.

When work began this spring, not a single lease had been signed by the Miller-Global Company, the joint venture that is developing the land. Yet by proceeding with care and spreading the risk over several buildings and a number of years, the builders believe that they have minimized the financial danger. Although putting up one large building would be less costly on a per-sq-ft basis than this piecemeal approach, it would also invite catastrophe in the event of an economic downturn.

Mitchell Rutter, the president of Essex Capital Partners, a New York City development firm, says he and others are indeed likely to be more cautious as they proceed. Rutter is rebuilding what he describes as "one of the largest spec sites on the East Coast," in downtown Rockville Center, Md. Rutter says the development will be built to fit more basic programs reflecting more stripped-down business strategies.

"In the past, buildings were larger, basically fueled by the availability of capital," says Donald Dupree, the president of Cousins Properties, an Atlanta-based real-estate investment trust (REIT) that is developing a suburban site by building six office properties in a way that echoes the Miller-Global project in Denver.

Peter Slatin is a regular contributor to "The Ground Floor" column in Barron's *and reports on commercial real estate for the* New York Post *and the Urban Land Institute. A former* RECORD *editor, he has also written for* The New York Times *and* Historic Preservation.

BOOM THE BUILDING

SPECULATIVE OFFICE CONSTRUCTION

	METRO	1995 TOTAL SPECULATIVE NEW CONST. (SF)	1996 TOTAL SPECULATIVE NEW CONST. (SF)	1997 TOTAL SPECULATIVE NEW CONST. (SF)
MOST ACTIVE MARKETS	ATLANTA	185,875	1,119,705	2,465,600
	CHARLOTTE	575,000	854,262	1,652,220
	RALEIGH-DURHAM	465,760	812,467	483,411
	PORTLAND	231,329	407,625	685,500
	DISTRICT OF COLUMBIA	490,000	405,000	252,182
LEAST ACTIVE MARKETS	FAIRFIELD COUNTY	0	17,904	0
	SAN ANTONIO	0	13,000	0
	NEW YORK	0	0	0
	NORFOLK	0	0	0
	PHOENIX	0	0	0

Source: The REIS Reports, Inc., March, 1997

The area he is building on is called Northpoint, which "didn't exist 18 months ago," he says. "It's far and away the most active area in Atlanta," notes Dupree. "There is some spec development now, but it's different than in the past because the measurement of the risk is a lot smaller," and so are the buildings, he adds.

Builders and lenders have all learned to be "a little more careful, more intelligent," says a commercial mortgage broker who arranges financing for projects around the country. "Historically, banks used to never look at what popped out of the ground as a result of their lending."

Vacancy rates may be going up again

Now, he says, "We're back where we were 16 years ago, but I don't foresee the lenders being as generous as they were." Lloyd Linford, president of REIS On-Line, a real-estate database, believes there is good reason for banks to be cautious. Linford says his data indicate that if building continues at current levels, vacancy rates will go up to 15 percent within four years. "Historically, that's not too bad. A year ago there wasn't sufficient

MARKET
SPEC OFFICE BUILDING

activity for [illegible] concerned about overbuilding."

According to REIS figures from 50 major metropolitan areas, new spec-office projects that are no more than 50 percent preleased at the start of construction more than doubled from 5.1 million sq ft in 1995 to 10.7 million sq ft in 1996, and should reach 13.8 million sq ft this year.

Most of what is getting built, though, is generic product geared to suburban office parks. These buildings, says John Cavanagh, an executive with Morse-Diesel, are intended not as corporate headquarters requiring signature design, but are instead back-office types of product. "There are corporate parks being put up for small and intermediate companies, and a lot of people trying to build second and third offices. But you will never see the demand we had in the past for commercial space."

"You still have the problem of major corporate downsizing and outsourcing," says Cavanagh. "The downsizing phenomenon, however, has led to increased amounts of interiors work as companies restructure their offices and move to consolidate." This work is also fed by commercial vacancy rates in major business centers. Companies look to cut costs dramatically by reconfiguring older office buildings.

This trend is somewhat confused by what can best be described as "fluid" building classifications. Building owners like to point to shrinking supplies of so-called Class-A buildings—the newest, most technologically sophisticated, best-located, and best-serviced properties—when they describe rising occupancy rates. But these figures often mask much greater availability in Class-B buildings: older-generation properties that in many cases can be retrofitted and can often end up costing tenants less than a "market rate" rent in a much newer building.

Paul Whitman, a commercial real-estate broker at the Staubach Co. in Dallas, notes that while most reports on the city's vacancy rate place it at around 15 percent, that number soars to more than 30 percent when second- and third-tier buildings are added to the mix.

In New York City, Credit Suisse First Boston, the investment banking house, took advantage of the availability of second-tier real estate by relocating offices from a variety of buildings into a 2-million-sq-ft 1920's structure. This involved an investment of $300 million from First Boston and $200 million from the building's owner, Metropolitan Life.

In cities such as Chicago and New York, what began almost two decades ago as a fad for the conversion of older industrial buildings to loft-style apartments has taken the next turn. Office buildings, both older and newer, are being converted into apartments.

In lower Manhattan, a full-scale push—backed by tax abatements from New York City and State—has led many big developers and some new players as well to buy buildings for residential conversion. Similar projects in largely abandoned, major office buildings in Dallas' central business district have also taken root, notes Whitman.

Thomas Black of the Urban Land Institute in Washington, D.C., sees another change rippling through the office-building market. "The pattern of building seems to be moving back toward metropolitan centers," said Black. "Instead of driving the ring further out, there's more activity toward downtowns."

In addition, there is the return of large institutional investors such as pension funds and insurance companies, many of which said less than five years ago that they were swearing off real-estate lending. Because many large private investors, including so-called opportunity funds, fearing a slide in stocks, are switching to real estate as a hedge, there's added pressure to put cash into construction.

Not all of those projects will go forward based on sound projections of their viability, of course. But if the pressure to spend money gets fierce enough, perhaps some will have budgets for more innovative architecture, sophisticated curtain walls, and upscale finishes. ■

DEVELOPER BRINGS GREEN IDEAS TO THE SPEC MARKET

by Clifford Pearson

Neither Times Square nor speculative office buildings are normally associated with "green" architecture. So if the eco agenda behind 4 Times Square, a 48-story office tower starting to rise at 42nd Street and Broadway in New York City, becomes reality, the project will break new ground. Whether other developers and the spec-office market will follow is an open question.

Up to now, most environmentally friendly buildings have been designed for particular clients—usually companies or organizations whose business or mission is associated with the environment. For example, the National Audubon Society and the Natural Resources Defense Council [RECORD, October 1989, pages 128–33] have both worked with the Croxton Collaborative to convert old buildings into new offices, using design approaches that reduce energy consumption and specify environmentally correct products.



Since a large part of any green-design strategy is directed at the interior spaces and the products used there—which are determined by tenants—most developers of speculative office buildings figure they can exert only limited influence in fostering eco-friendly construction. And economic realities tend to reinforce this attitude. Green construction sometimes costs more up front (though it can save money in the long run) and almost always involves more research and thought on the part of designers. If tenants want to follow this design path, they can always do so in their own space and on their own nickel.

Passing energy research on to tenants

Bucking this way of thinking, the Durst Organization, the developer of 4 Times Square, decided it wasn't going to wash its hands of responsibility for the tenant spaces inside its new building. By passing along to its tenants the research on green design that its architects, engineers, and consultants had done on the building envelope, and by providing a set of guidelines for tenants to follow in building out their own spaces, Durst figured it could encourage the occupants of 4 Times Square to apply these principles to the building's interiors. If the developer could make it much easier for tenants to create green offices, then it could create a building whose base architecture and interior design work together to maximize the benefits and long-term payoffs of sustainable design and construction. "If the tenants don't continue the effort we've made in developing an environmentally conscious building, then a lot of the benefits are lost," explains Jonathan Durst, vice president of the Durst Organization.

Green architecture can result in healthier office spaces and ones that cost tenants less to heat, light, and operate in the long term. But what's in it for the developer? The answer to this question is not easy to quantify. According to the Dursts, being environmentally responsible is part of their personal and business philosophy. Establishing green credentials for 4 Times Square also helps give the building a distinctive identity that is attractive to many upscale tenants.

But it's unclear how important this was in convincing the Condé Nast publishing empire and the law firm of Skadden Arps to move into the building. (These two tenants together will occupy about 80 percent of the building's office space.) Douglas Durst, president of the Durst Organization, admits "there isn't much hard demand for green office space right now," and that his company "is leading the market" rather than responding to market forces.

On the other hand, "Tenants are looking at the big picture more these days," states Daniel Tishman, president of Tishman Construction, the construction manager of the project. "They're looking at long-term costs as well as initial costs." Indeed, leases for some large users of office space are now 20 years long, says Tishman.

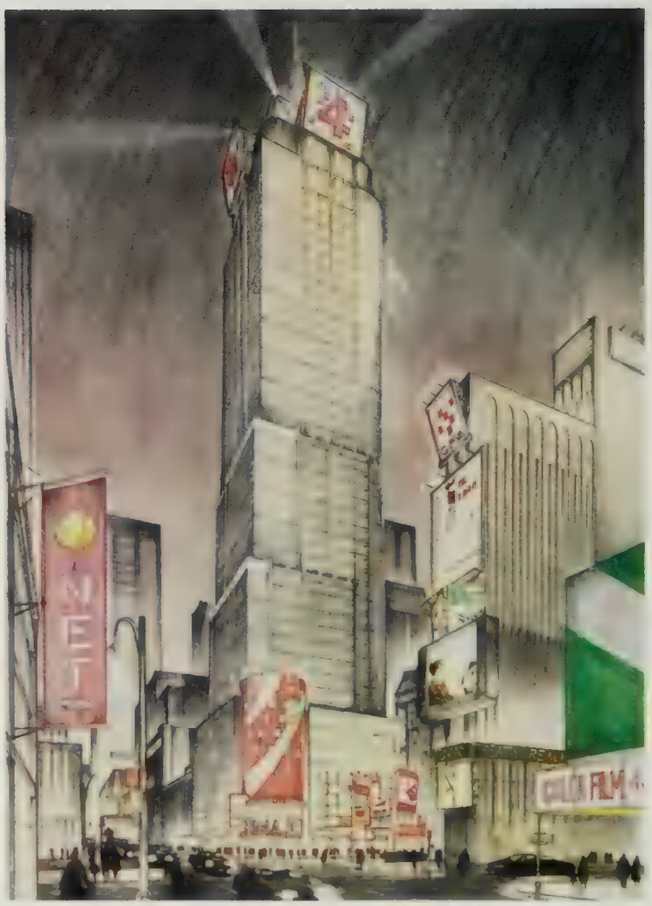
"We hope this project creates demand" for environmentally conscious office buildings, says Douglas Durst. "The idea is to create a product that everyone will have to follow."

The benefits of such buildings include reducing energy consumption, minimizing damage to the environment, and developing workplaces in which people are healthier and more productive. "The public is becoming more aware of indoor-air quality," states Bruce Fowle, a principal of Fox & Fowle Architects, which is designing 4 Times Square. "Some studies show a 15 percent increase in productivity" for workers in offices that are healthier and have more daylight, notes Fowle. According to research done by the Building Owners and Managers Association and the Electrical Power Research Institute, rent on office space represents only 13.5 percent of average annual commercial expenditures, while employee costs are 83.4 percent of the total. So making workers more productive can have a big impact on a company's bottom line. "If you get a 10 percent increase in productivity" from a healthier office environment, says Fowle, "you can pay for all of the features" needed to make a building green.

Location, location, location

After years of decline and endless debate on plans to revive it, Times Square is red hot once again. Under the auspices of the 42nd Street Development Corporation (a state agency), grand old theaters have been reborn as the New Amsterdam [see pages 112–19] and the New Victory [RECORD, February 1996, pages 66–71], and a bevy of glitzy new stores have moved into buildings vacated by peep shows and porno shops. A few blocks north of 42nd Street, a crop of office towers designed by Skidmore, Owings & Merrill, Gwathmey Siegel, Kevin Roche, and Fox & Fowle shot up in the boom years of the 1980's, transforming the area from America's original urban entertainment zone into a mixed-use, commercial district.

Reflecting the new mix of uses in the neighborhood, the 1.6-million-sq-ft 4 Times Square project will be an office tower with 120,000 sq ft of retail and giant swaths of billboards and signage wrapping around much of the first four floors. On top of the building, 60-ft-square signs on all four sides will be readable from Grand Central Terminal to the east and even New Jersey on the west, says Fowle. These signs aren't just [illegible] they're serious business. According to current estimates, the street [illegible] signs could bring in about $2.5 million each year in rent and the [illegible] ads on top of the structure may contribute another $3 milli[illegible]





To reflect the more sedate character of the neighborhood to the east, the building will have more stone and less pizzazz on this facade (above), while its Times Square side will have more glass and signage (top).

Now that 4 Times Square is mostly leased out even before its metal frame has started to rise, there is talk of development starting soon at one or perhaps two of the other corner sites at the "crossroads of the world." These are where the infamous four towers designed by Philip Johnson and John Burgee in the 1980's were supposed to rise. Although the towers have been on hold for years, the sale of development rights to the sites funded much of the revival of 42nd Street.

Some critics have warned that too many office towers in Times Square will rob it of its unique identity as an entertainment district. But high-rise development here makes environmental sense in terms of taking full advantage of all the subway, rail, and bus lines existing in the vicinity. Office buildings in suburban or exurban locations, on the other hand, require most people to drive long distances in vehicles run by internal-combustion engines—often defeating any energy-saving or environmentally conscious strategies applied to the buildings themselves.

"People are starting to realize that you need face-to-face interaction for business, and cities are where you get this," states Douglas Durst. "The trend to the suburbs is slowing down." Says Fowle, "There's a renewed commitment to big cities like New York," although smaller cities, such as Hartford, Conn., and Buffalo, N.Y., are hurting. Lower crime rates, reinvigorated economies, and business improvement districts that provide a higher level of services such as street cleaning and security are all helping to attract office development to downtown locations.

Working as a team

From the beginning, 4 Times Square has been a team effort, with the developer, architect, engineers, construction manager, and a wide range of environmental consultants working together. "Each decision affects every other building component," explains Tishman, whose company will build the tower. A change in glazing, for example, might require rethinking the amount of insulation needed, which could affect the thickness of wall cavities and the building's structural system. While environmental concerns were factored into almost every decision, the project had to meet strict budgetary limits set by the price of rents prospective tenants could reasonably be expected to pay.

In addition to Cosentini Associates, the mechanical engineer, the list of environmental consultants is extensive: the Natural Resources Defense Council, the Rocky Mountain Institute (RMI), Steven Winter Associates, Eley Associates, and independent consultants Asher Derman and Pamela Lippe. Even in their own operations, the design and building team conserved resources—communicating electronically instead of on paper. "This is the first time all steel shop drawings were sent electronically," notes Tishman. "And there are 18,000 steel beams in this building."

Taking advantage of two grants, one received by the RMI, the project was able to use the most sophisticated computer technology available for energy analysis, the so-called DOE-2. Developed by the Department of Energy, this energy-simulation-modeling software helped the team design all hvac and lighting systems, and exterior cladding materials and techniques. DOE-2 technology and the data gathered from analyzing the base building are also being offered to tenants of 4 Times Square to help them determine the most efficient lighting and lighting-control systems for their own spaces, as well as the impact of daylight penetration on energy usage, and the most effective floor-by-floor hvac distribution, control, and exhaust systems.

Designing an environmentally correct base building

In a high-rise building such as 4 Times Square, glazing is one of the most important components affecting energy consumption. The best kind of

glazing filters out ultraviolet and near-infrared light, which create heat, while letting in visible light. "The trick is to achieve the right balance" between light transmission and heat gain, and between light transmission and glare, says Adrian Tuluca, a principal at Steven Winter Associates, which does energy, indoor-air, and environmental consulting.

One of the goals of the design team for 4 Times Square was to bring daylight deep into the office spaces, so the amount of light provided by fixtures could be reduced. To provide deep penetration of daylight into floors that average 35,000 sq ft, the team designed oversized double-glazed windows with a low-E coating. This double glazing will have a center-of-glass U factor of 0.30 (measuring the amount of heat loss), a shading coefficient of 0.30, and a visible transmittance of 0.40. Energy consumption will also be reduced by using 4.5-in.-thick exterior-wall insulation, instead of the standard 2 in. used in most office buildings in this part of the country.

The building will use two alternative sources of energy, in addition to traditional electricity. Solar energy will be generated from photovoltaic cells in spandrel panels on all four sides of the building. According to Tishman, 1.5 percent of the base building's energy needs will be provided by a thin film of photovoltaic cells applied to spandrel panels. (One drawback of this system is the extensive wiring needed to hook all of the spandrel panels to the building's electrical system.) The other alternative source of energy will be eight large (10 ft by 10 ft by 10 ft) fuel cells set on the roof and generating electricity from natural gas. "Fuel cells like these have never been used in an urban area before," notes Tishman.

Environmentally friendly mechanical systems

In terms of mechanical systems, 4 Times Square will utilize CFC- and HCFC-free natural-gas-fired absorption chillers, instead of conventional fossil-fuel-driven electrical systems. To optimize the efficiency of hvac equipment, all pumps, fans, and motors will have variable-speed drives with direct digital monitoring and control. Fresh air will be supplied to interior spaces through a "state-of-the-art" filtration system at a rate 50 percent greater than the current code requires, claim the architects. Floors will have individual air-handling units controlled by tenants so the system will be used only as needed. An oversized outside-air shaft will periodically purge interior air from each floor.

To ensure better indoor-air quality, the building's managers will monitor and control contaminants and particulates inside the building. A dedicated exhaust shaft will also allow direct exhaust of all smoke, fumes, and heat generated inside the building. In addition, all materials specified for the project will emit few, if any, volatile organic compounds (VOCs).

The building's structural system—a composite of steel and concrete—incorporates a "hat truss" at the top of the tower that maximizes its efficiency and reduces the amount of steel needed, say the architects.

To ensure that all of the building's systems and controls have been properly installed and are functioning correctly, the building will be put through a process called "commissioning" as soon as construction is completed. Every control device, fan, motor, pump, valve, and exterior wall component, for example, will be tested to make sure it meets the performance criteria set during the design phase. Tuluca is a big advocate of commissioning, saying it can catch problems and errors made during construction or caused by on-site changes.

Bringing the green message to the construction site

Not satisfied with using environmental principles on just the building itself, the team behind 4 Times Square is applying these ideas to the construction process as well. This involves developing a waste-management plan that calls for salvaging and recycling as much material as possible during demolition and using recyclable and nontoxic packaging materials during construction.

Construction waste will also be minimized by using modular, prefabricated, or preassembled building systems. By paying attention to scheduling and ensuring on-time deliveries, the construction manager expects to minimize vehicular idling, which causes traffic congestion and air pollution. Construction procedures will also reduce the amount of airborne dust and debris on site. All materials and products used in construction will be prequalified to ensure they are manufactured in environmentally responsible ways.

Passing the environmental message to tenants

To help the future tenants take full advantage of its green infrastructure, the architects and consultants of 4 Times Square prepared guidelines that cover energy efficiency, lighting, office equipment, indoor-air quality, resource conservation, and construction practices.

By designing interiors so daylight can be shared, rather than monopolized by private offices, the use of electrical light can be minimized and energy bills reduced sharply, says Charles Eley, whose firm was an energy consultant on 4 Times Square.

Sensors that turn lights on only when someone is in a room are another simple way of keeping energy costs down. Tenant guidelines help companies reduce lighting loads to 1.0 watts per sq ft from the typical 1.5 to 2.0 watts. "Most offices today are overdesigned for electrical lighting," states Eley.

By purchasing energy-efficient computers, printers, and copiers, and following other guidelines, tenants can limit their plug load to 1.0 watts per sq ft, rather than the 4.0 watts used in conventional offices. "Tenants can reduce their power loads by 30 to 40 percent just by changing their office equipment," says Eley.

Other parts of the guidelines help tenants select furniture, carpeting, materials, and finishes that emit few if any VOCs, and select products made with recycled contents.

While many of the items recommended in the guidelines are small steps and some are already well known, together they represent a significant amount of research offered to tenants at no charge. But since the entire program is voluntary, there is no way to tell at this point how thoroughly tenants will follow them. And only time will tell whether 4 Times Square becomes a model that other developers feel they must follow or just a well-meaning anomaly in the real-estate world. ■

GREEN

WILL IT SELL?

SUSTAINABLE DESIGN OFFERS KEY TO CONTROL

by Randolph R. Croxton, FAIA

The time is long overdue for architects and the public to stop employing the term "green architecture" like a 1970's "save the earth" sound bite and see it for what it is: a fundamental reconsideration of the way architecture is currently taught and practiced in this country.

The term was never intended to refer to design, or a look, or a few politically correct add-ons to make corporations and nonprofit organizations feel good about their buildings. Rather, it was meant to encompass a comprehensive reordering of priorities for what constitutes a successful design. It is the precondition to good design, not the determinant.

"Sustainable," "environmental," and "humanistic" are all better adjectives than "green" to describe the attributes of this reconsidered architecture, and to stand in contrast to the values and objectives that currently drive the built environment. Practiced competently, sustainable/environmental architecture reverses the trend of construction on the cheap by making visible the lost qualities of buildings. In doing so, it places the architect at the center of a quality revolution that produces massive savings for the client.

How we got where we are

How did we get to a time and place where waste, inefficiency, marginal functionality, and false economy dominate the building industry model for project delivery—the construction manager/design-build development model?

Three watershed events in the 1960's are responsible for the state of architecture today and the diminished role of the architect. The first was the elimination of the architect's fee schedule by the U.S. Justice Department. The traditional architect "authority" model was embedded in that fee/scope and its related documents. The second turning point was a retreat by the profession from the liability associated with schedule and budget issues which was institutionalized in the form of new AIA contract language. Both of these events transpired against the backdrop of a shift in architectural education that placed disproportionate emphasis on design theory over basic science, technology, and management.

The almost instant response to this professional turning away from responsibility in the 1960's was the emergence of the construction management model. The general contractors of the day, such as Morse-Diesel and Turner Construction, saw the authority/responsibility void and sought to supplant the architect in the owner-architect relationship as the primary model for the building team.

These builder/contractors were going after a core asset of the architectural profession, the fiduciary role. Although there were clear conflicts of interest, the builder/contractors passed themselves off as disinterested parties who could protect the owners' best interests. The potential for corruption and self-dealing were the worst consequences. The use of low-cost building materials and systems in the pursuit of lowest first cost at (essentially) any cost became widespread.

Architectural fragmentation

The "design" architect's role in this "one-note symphony" devolved into that of a "stylist" in support of marketing, while other, often separate, "production" architects and interior design "stylists" did the rest of the job. This maximum fragmentation of the design disciplines and disordered pursuit of cheaper alternatives destroyed the potential for integrated, high-performance design.

As a result, the 1980's brought a high-style bonanza of snazzy-looking curtain walls and glitzy lobbies with marble, stainless steel, and exotic wood paneling, while the underlying building quality, long-term performance, and occupant comfort often fell to the minimum.

The developer's standard line of defense became, and often still is, "This building meets every code." A more accurate statement would be: "If we built this building any worse, it would be against the law." In the design-build program, appearance became everything.

This massive devaluation of intellectual equity (architectural, engineering, and interior design) could only occur if the client/owner could at least be pacified into believing that economizing in nonvisible areas would not result in a significant reduction in the quality and efficiency of the building.

By contrast, the sustainable/environmental approach can demonstrate in dollars and cents how unseen quality pays off. Measurable and immediately achievable economies include a 50 percent reduction in energy consumption, often translating into a $1/sq ft/yr savings, $1.50/sq ft/yr savings in maintenance, operations, and replacements, and productivity savings that exceed $10/sq ft/yr over standard practice.



So why has the sustainable/environmental approach to architecture been adopted by so few practitioners? There are several reasons. The rush to and subsequent failure of solar technologies in the 1970's has had a "hangover" effect on anything remotely environmental. For architects, there is the seduction of spending money on surface design, the typical focus of award juries and architectural magazines.

In addition, in an environment of downward spiraling fees and authority, there is fear of change, especially when it requires additional investment of resources in the knowledge base of the firm.

Still, the greatest cultural barrier to the adoption of a fully integrated, high-performance design approach may be the tendency for architects to see issues of performance as technical or "engineering" issues, and as a drag on artistic freedom. The myth that you can be good artistically or good technically—but not both—lives on.

Randolph R. Croxton, FAIA, is a principal of Croxton Collaborative Architects in New York City, which has pioneered sustainable architectural design. His projects include the Natural Resources Defense Council Building in Washington, D.C., and Audubon Center in New York City.



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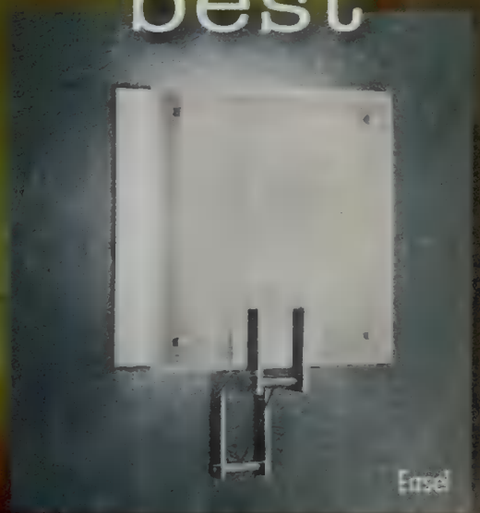


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The big picture

There is no question that the sustainable/environmental approach is more demanding. The architect can no longer leave the "uncool" technical and performance issues and code compliance to others. Far more than that, the approach expands the reach of architectural concerns to the building's entire life cycle, from the extraction of raw materials, through habitation, operation and maintenance, to the disassembly and reuse of the materials. It is the understanding of this process—the complete picture of actions and their consequences in the built and natural environment—that becomes the domain of the architect. Only from this perspective is it possible to begin to quantify the importance and large-scale economies that flow from a thoroughly considered design. What is the impact on the planet, the region, the municipality, the site, the building? It becomes possible to focus on the "big dollars" and to demonstrate the massive returns made possible through an investment in intellectual equity. The "fast and cheap" model is easily seen for what it is.





At the NRDC Building, the Croxton Collaborative brought daylight in from a skylit atrium (left). At Audubon House, the firm used glass partitions to allow sunlight to penetrate deep into the offices (below).

In addition to this expanded overview, the design team must make some basic shifts in its priorities and methods to get to a sustainable/environmental model. An ongoing process of constant quality improvement must be integrated in the firm and in the design team. Rather than a few visible "green add-ons," the design process must capture hundreds of incremental quality enhancements that are both cost-effective and dependable, and that add up to massive improvements in performance. Here are four methods for accomplishing this goal:

1. Aggressively integrate research and the available knowledge base of building science and the environmental sciences into the design process.

2. Develop cross-disciplinary teams with a self-critical process of systems development and constant quality improvements. These teams should consist of such professionals as industrial hygienists, energy-simulation specialists, and chemists.

3. Acquire or hire skills in the analytical tools of building performance: DOE 2.1 energy simulation, radiance/daylighting, infrared testing, air-infiltration testing, computational fluid dynamics, and so on.

4. On your completed projects, harvest all the performance data from users and systems in order to create the feedback loop necessary for constant quality improvement.

The good news

The good news is that the technology is out there. For the past 15 years, while building performance has limped along with a "building as product" mindset, numerous key building technologies have matured to high levels of performance. As a result, a large gap has opened between the accepted code-compliant building and the massive cost-beneficial margins of performance that characterize buildings delivered by a quality-entered team using a sustainable/environmental model.

Architects have the intellectual and educational framework and the team-building skills to conceive buildings in an integrated fashion with high intellectual equity, employing multidisciplinary teams. These "architectural traits" are profoundly different from the reductive thinking that characterizes the scientific/engineering approach.

One further opportunity to raise effectiveness concerns the relationship between architects and the public. There is an often-stated lament that we must educate the public. (Small wonder that in opinion polls, people frequently characterize architects as arrogant.) The reverse attitude is more enlightened: Architects need to be educated by the public. We need to develop a human-centered design approach that solves real problems in the marketplace of human endeavor (indoor-air quality, daylighting, energy efficiency, worker comfort, safety, well-being, productivity, operational efficiency, and maintainability). Sustainable/environmental design is so much more than another trend or style; it is the opportunity for architects to restore the integrity of the built environment and, in doing so, to return the profession to its historic strength. ■



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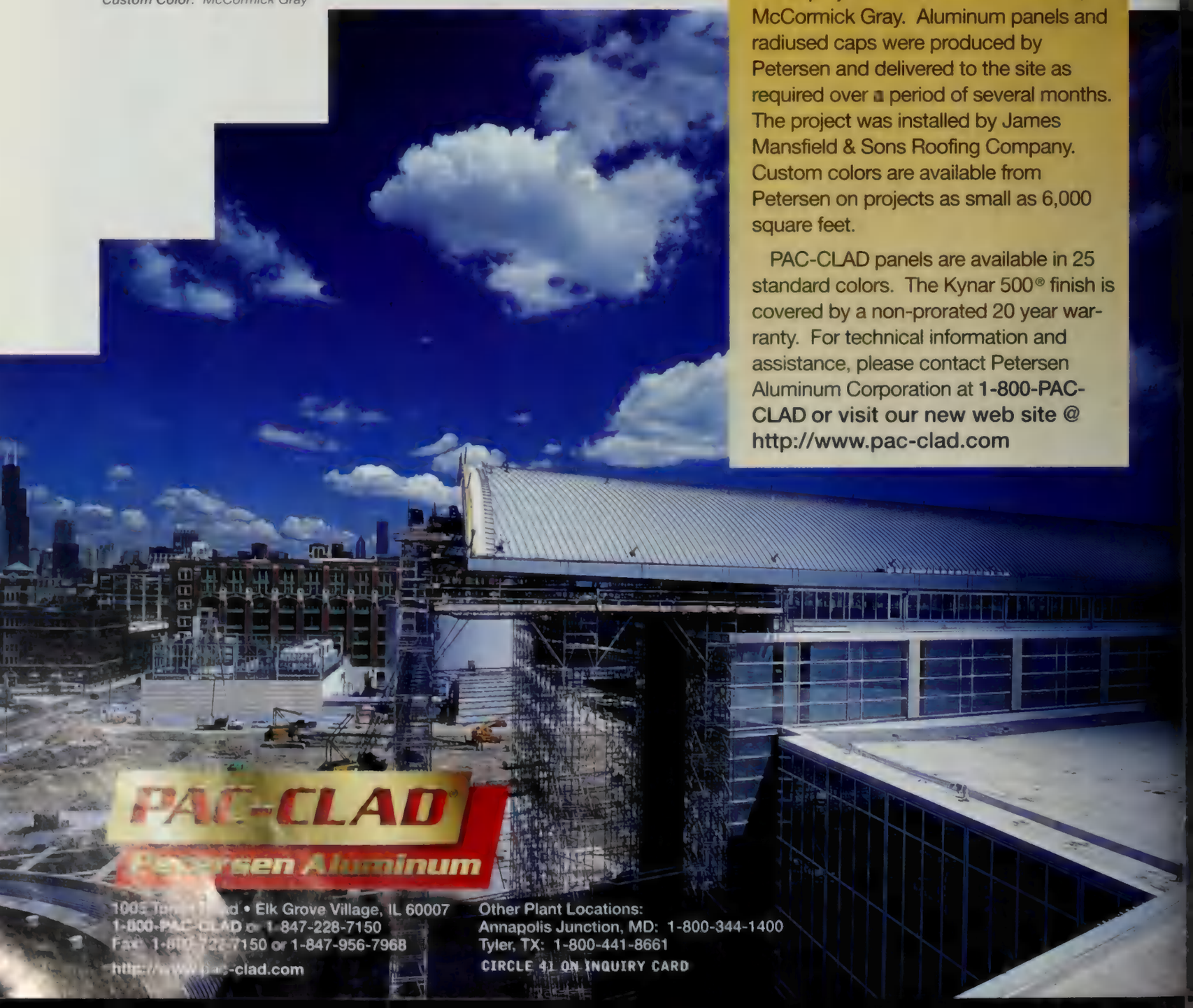
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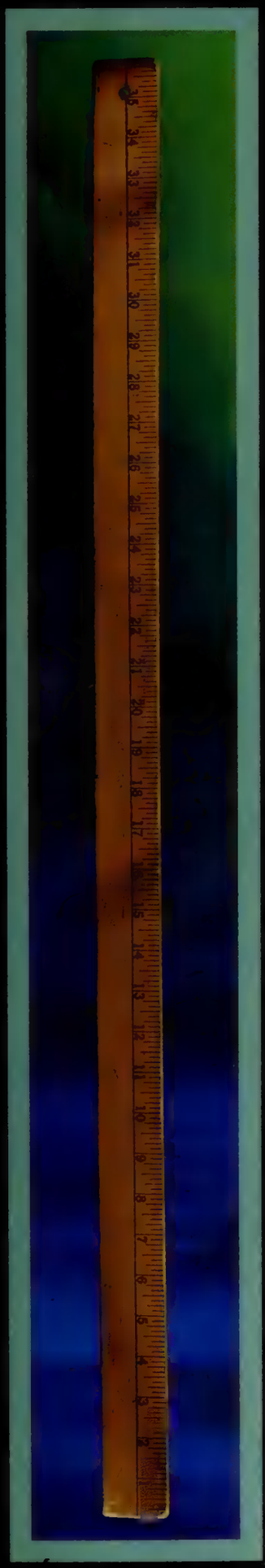
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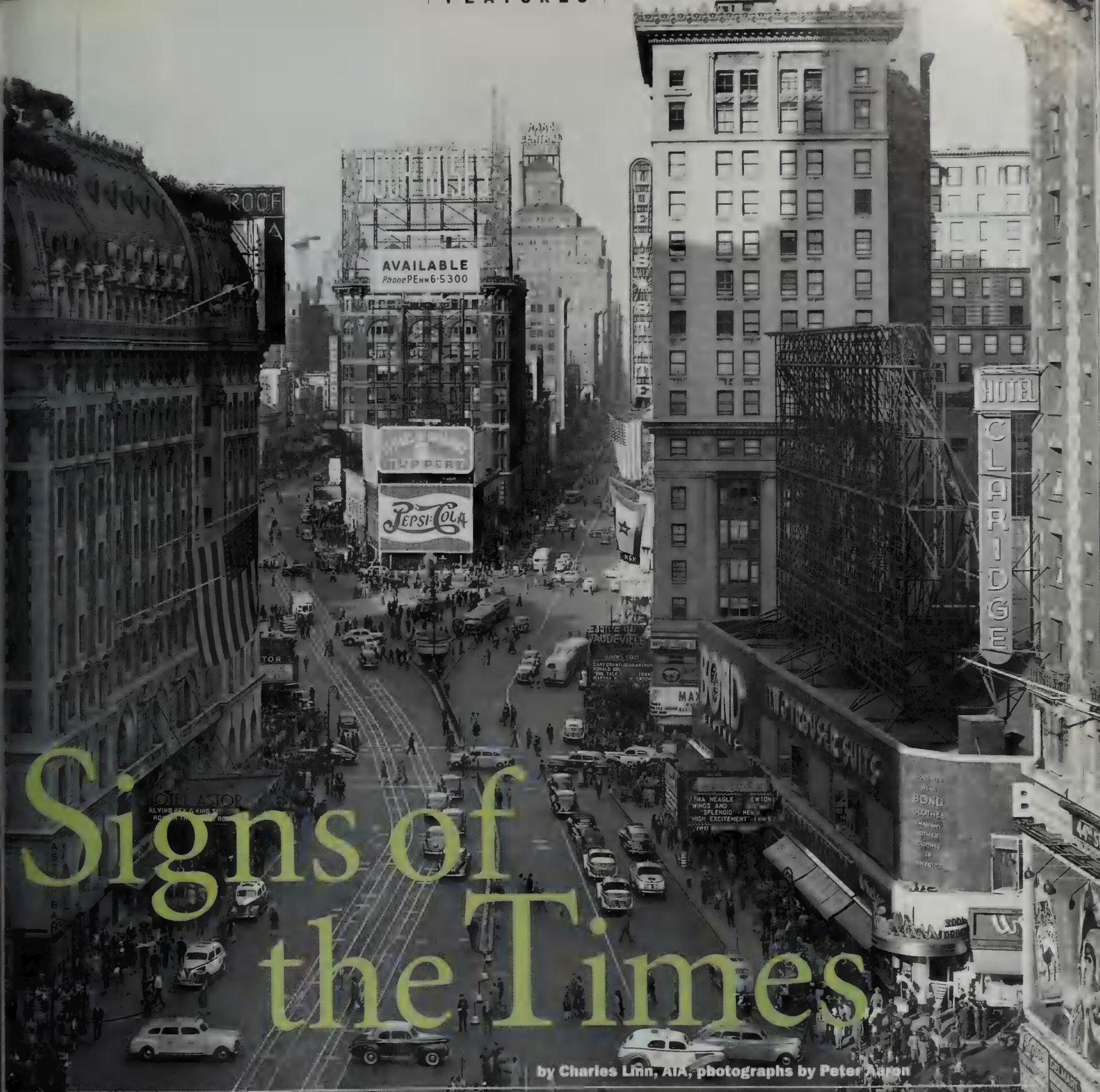
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Signs of the Times

by Charles Linn, AIA, photographs by Peter Aaron

A few years ago, observers of the urban scene were pounding nails into Times Square's coffin. The district had fallen into a squalid torpor where porno shops, triple-X-rated movie houses, and seedy bistros had overwhelmed the hotels and theaters that had once given the place an international reputation as "the Crossroads of the World." Those tourists who had the courage to come here came to be titillated at how dark things had become, not to see the lights of the Great White Way. Like any great actress, Times Square, the 12 square blocks that form the "bow-tie" that area where New York City's Broadway intersects Seventh Avenue at a sharp angle, has reinvented herself to fit the times once again. With infusions of cash from corporations such as Disney, and the revival of musicals such as *Les Misérables*, and *Phantom of the Opera* in the theaters that flank the streets along Broadway and Seventh, tourists jam the district in yellow taxis, buses, and on foot. Restorations of theaters such as the New Victory and the New Amsterdam have been architectural hits, and the great office towers built in the 1980's, which stood empty for almost 10 years, have been gradually leased, giving this great urban place the Grande Dame of theater districts, good reasons to turn up the lights. But it is the great walls of signage that really give what old-timers call "the Canyon" its new sheen. Behind the signs are *[illegible] continues only up*



Ezra Stoller's photograph (previous page) of 1949 shows a scaled-down, more dignified view looking north over the Square than the photo taken recently.





Most of the spectacular signs in Times Square are supported by complicated trusses (left and right). The Square's signs are a museum of current cultural icons.





A panorama at night looking north up the canyon captures the rapid, non-stop movement of traffic through the Square (above). One of the best views of the Square is behind glass at Foley's Fish Market in the Renaissance Hotel, which provides a 220-degree view of the signs at eye level (opposite).

WHETHER ONE ADORES TIMES SQUARE BECAUSE IT IS A UNIQUE PLACE, OR DESPISES IT BECAUSE IT IS A CONCENTRATED LOCUS OF TACKY COMMERCIALISM, ONE THING IS CERTAIN: TOMORROW IT WON'T BE THE SAME.


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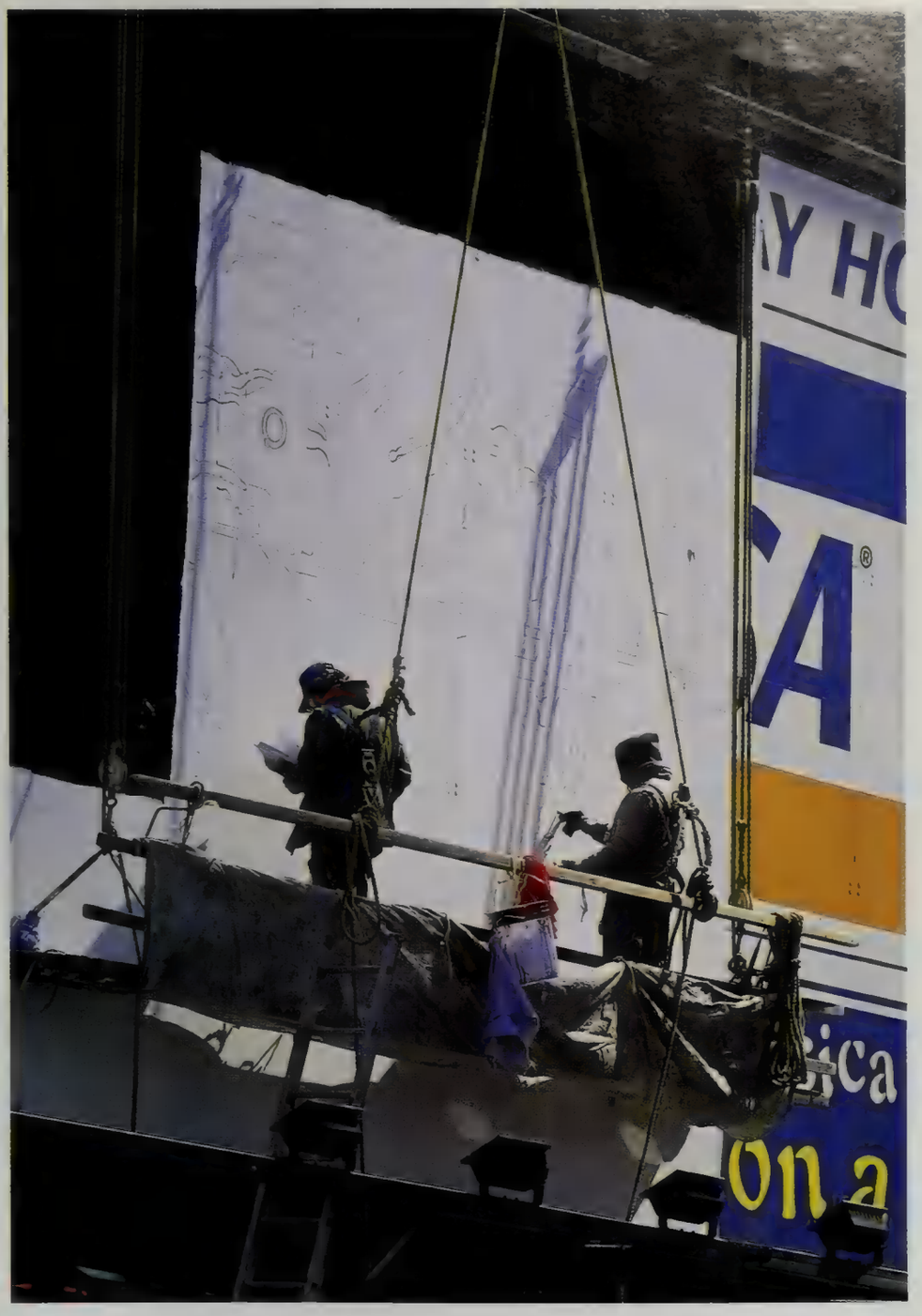



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Painted plywood disguises abandoned 42nd Street porno shops (below). A statue of Ethel Barrymore as Ophelia that graced the Show Folks Shoe Shop (bottom) is upstaged by signs. Sign painters (right) alter the visual landscape the old-fashioned way. Gleaming billboards are crammed together tightly here, but part of an old brick wall peeks through the message mélange (opposite).







busted parapet walls glued together with liberal coatings of roofing cement, layers of old tin punched for glass neon stand-offs, tiles and enameled panels, and conduit torched off at the walls. Remnants of long-gone sign trusses peek out from between the signs. Without the decorated flats that spatially define the Square, the collection of curtain wall and ragtag brick and terra-cotta buildings that line it could be almost anywhere. As great planes of color, these sign panels redefine the building walls as a great outdoor room. As billboards, the amount of information they present almost overwhelms the senses, shouting out logos and pictures of products. Some take a subtle approach, featuring a label's name, a photograph of a model, and nothing else. Viewers are left to draw their own conclusions about what the meaning might be. A Japanese pharmaceutical company, almost unknown in the U.S., presents its logo in two-story-high letters, simply for the exposure, which is not insignificant. Millions of people from all over the world will see the sign in a given year, and millions more will see it whenever a television or movie camera pans the Square. The rental value of the vertical real estate on the side of a building here is, in some cases, greater than the horizontal. Whether one adores Times Square because of its audacity, and the way the variety and ingenuity of it all coalesce to create a unique place, or one despises it because it is a concentrated locus of tacky commercialism and home to some of the most bizarre creations ever to come out of a signmaker's shop, there is one guarantee: tomorrow it won't be the same. Almost every day, something is being dismantled and something new is being installed. The composition of light, forms, and colors that make up the architecture of Times Square is never static. ■

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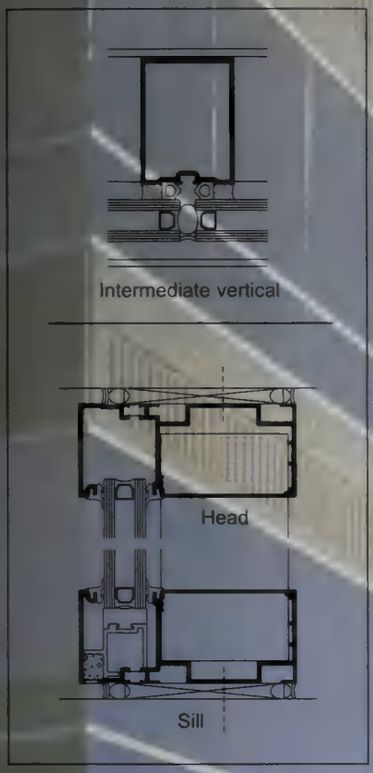
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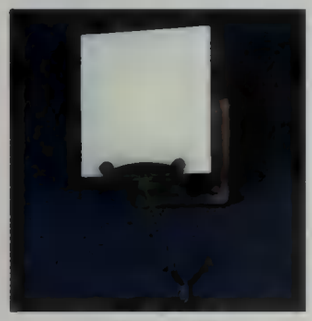
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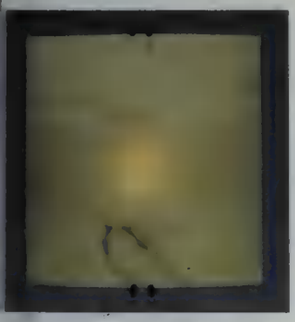
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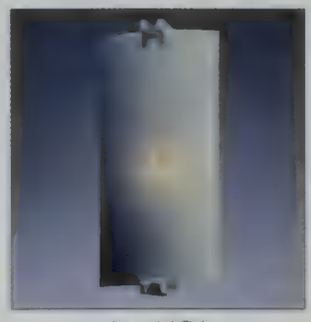
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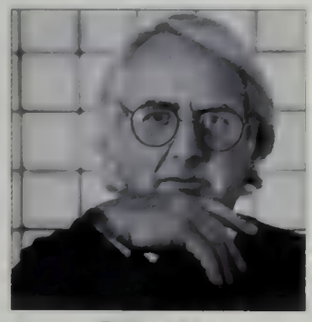
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Photos from Thompson and Horne's initial visit inspired their concept sketches (right). Later sketches are also shown.









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PROJECT DIARY: The story of two thirty-something architects and their ideal commission, the ATLANTIC CENTER FOR THE ARTS, in an unlikely setting, the Florida "jungle."



by Karen Stein

When Maryann Thompson and Charles Rose started practicing architecture, they were as eager for work as many and perhaps more focused than most. Even before finishing graduate school—Rose in 1987 and Thompson, with a joint degree in architecture and landscape, in 1989—the husband-and-wife team already had a project of their own. Commissioned to do a master plan for the Hartsbrook School in Hadley, Mass., they were on their way to securing their professional reputations well before either celebrated a thirtieth birthday. While the scope of the project—from landscape design to architecture—was ideally suited to their vision of a multidisciplinary practice, their involvement was drawn out over years. A subsequent commission for an arts center seemed ideal for Thompson, a painter, and Rose, an accomplished pianist, though its realization, too, was less than immediate. This project was to provide the lesson that more seasoned architects than Thompson, now 36, and Rose, 37, still struggle with: Architecture takes time.

1989-1991 Work on the Hartsbrook School is at a lull by the winter of 1989, and Maryann Thompson and Charles Rose have no major projects to sustain their fledgling practice. Putting their own firm on hold, they join the Cambridge, Mass., office of landscape architect Michael Van Valkenburgh Associates. Thompson had been an assistant to Van Valkenburgh while at Harvard's Graduate School of Design; Rose was a student in his class. Thompson's father, retired in Florida and a board member of the Atlantic Center for the Arts (ACA), tells the duo that the institution, founded in 1978 by local sculptor Doris "Doc" Leeper as a working retreat for artists, is planning an expansion. On his recommendation, the architects are added to a list of some 10 potential firms for the project. Ted Potter, executive director of ACA, is wary of a family recommendation. "It's usually a minus," he says, but after reviewing their portfolio he is genuinely "intrigued." Thompson's father recuses himself from any decisions regarding the commission. On a family visit to Florida, Thompson and Rose tour the site in New Smyrna Beach, a community of 18,000 people outside Daytona, and acquaint themselves with the place and the project.

MARCH 1992 Thompson and Rose are one of five firms invited by ACA to interview for the commission. Provided with a thorough six-page document called a "Space Needs Evaluation" that outlines the center's mission—"a unique environment wherein creative experimentation is pursued in a protected atmosphere"—and physical requirements—workspaces for dance, drama, painting and drawing, sculpture, music, and writing—the architects begin intensive research into the program and the site knowing that they have less built work to show at the interview than the other candidates. Rose says the strategy is to "excite the client with a deeper

Project: *Leeper Studio Complex, Atlantic Center for the Arts New Smyrna Beach, Florida*
Architect: *Thompson and Rose Architects—Maryann Thompson and Charles Rose, principals-in-charge; Michael Grant, Joseph McDonald, Warren Van Wees, Michael Breau, Francisco Thebaud, Patrick Maguire, Tim Downing, Lisa Iwamoto, Dana Weeder, and Julie Kline, project team*
Engineers: *Oemulgee Associates—Wayne King (structural); Jerry K. Finley (civil); M-Engineering—Shige Moroi and Brad Shaffer (mechanical, electrical); PSI-Jammal Associates—Don Stites and Don Budnovich (geotechnical)*
Consultants: *Hanson Taylor Bellomo Herbert—Glen Herbert (landscape); Cambridge Acoustical (acoustical)*
General Contractor: *Epoch Properties—Dean Sandroni (construction manager*

understanding of the site." To counter what they perceive as their underdog status among local firms with principals up to twice their age, the architects produce five alternate schemes for the presentation to "generate credibility and show enthusiasm," says Rose.

The schemes preserve the site's low scale, jungle-like thicket of palmetto shrubs and twisted scrub-oak by proposing individual pavilions for each creative discipline. The buildings are joined by a boardwalk that appears to hover above the dense vegetation. The schemes interpret the 67-acre parcel as a spatial experience: a labyrinthian place where buildings are invisible 30 ft away. The lost-and-then-found quality is reinforced by the forms and materials, which are based on interpretations of the Southern vernacular Cracker style of architecture. Their youth is "not a concern," says the ACA's Potter, who feels an instant rapport for Thompson and Rose's approach—a mystery of architecture that is obscured, then gradually revealed—pronouncing their ideas "a conceptual work of art." Driving back to the Daytona airport, the architects stop to phone home, and learn they got the job.

SPRING-SUMMER 1992

With their baby son asleep on the studio floor, Thompson and Rose work late nights developing their plan for ACA. Rose calls the design process "a total collaboration." Thompson elaborates: "We both sketch for awhile and then come together and figure out which ideas we like." After establishing an overall strategy for the complex of six buildings inserted into the lush landscape, "We each take a building to develop, then we trade and work on each other's buildings," explains Thompson. What accounts for this seemingly effortless sharing of ideas? Thompson has a theory: "We did one of those around-the-world tickets where we traveled [from September, 1984 to August, 1985] with one set of clothes and backpacks full of sketchbooks. When we say it's like [17th-century] Katsura [the Imperial Palace in Kyoto, Japan], it's understood." The ease of collaboration on this project is reinforced by the appeal of the program, which Thompson describes as "the [idealistic] kind you get in school."

For this project, however, they credit additional collaborators. Working in drawing and model, the architects meet regularly with Potter and an advisory committee, including playwright Edward Albee, choreographer Trisha Brown, photographer Jack Mitchell, and poet Charleen Swansea, to understand the intense nature of the ACA's artist-in-residence program, where mid-career artists apply for the opportunity to interact with "master artists," who are recognized leaders in their field. The sense of synthesizing that characterizes ACA's mission influences not only the site strategy but also the detailing and materials of the individual buildings. Thompson pays her client what she considers the ultimate compliment, by saying of the back-and-forth between architect and client: "We're treated like artists."

New Smyrna Beach, south of Daytona, is developing a reputation as an artists' community. The Atlantic Center for the Arts owns some 67 acres adjacent to Turnbull Bay, a tidal estuary.

Gradually, the individual buildings become emblematic of the disciplines contained within. In the painting studio, wood louvers and giant light monitors slicing through an expressionistic array of wood beams cast painterly layerings of light and shadow. The nearly windowless but high space of the music room is purposely "insular and uplifting," say the architects. The upper walls of the dance workshop are splayed outward like a ballerina's uplifted palm in the downward arc of the *port de bras*. The roof of the sculpture studio hangs over an outdoor work area to reinforce a flow of space where inside and outside blur. The theater is cloaked in a mysterious wood box with a protruding glass lobby, and the library, hidden at the back of the site, is "antisocial" to the grouping, but has the only view out of the site toward nearby Turnbull Bay.

At the end of 1993, with fundraising under way, Potter leaves for a new job in New Orleans and Suzanne Fetscher, who had been with ACA in various posts since May, 1990, is made the new executive director. The



ONE IDEA, FIVE OPTIONS

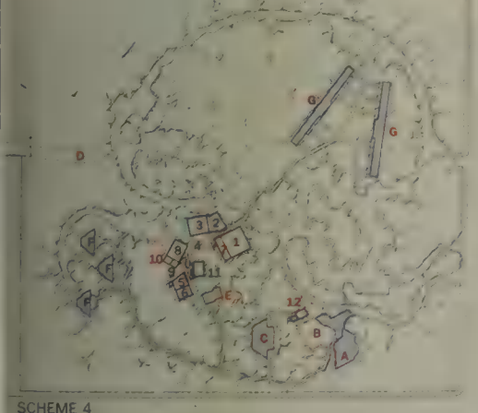
When Maryann Thompson and Charles Rose went to New Smyrna Beach to interview for the ACA commission in March, 1992, they came equipped with five alternate conceptual proposals. While all of the proposals show the various parts of the program—drama work space, dance studio, sculpture studio, painting studio, music studio, and library—scattered along a boardwalk, each has a different relationship of parts. Since the ACA provides a three-week or longer working retreat for artists of all disciplines and is not a performing institution, there is no stark public-private delineation. However, several



architects worry that Potter's departure will delay the project and, more importantly, that the removal of a strong design ally will force them to revisit what they consider to be resolved aspects of the scheme. Their fears are unfounded as Fetscher proves to be firmly committed to the design. She shares the architects' vision and says of ACA, "We're about risk-taking; we're about providing opportunity to artists." A challenge grant from the National Endowment for the Arts is denied, but state funds and private donations from Leeper's many friends are raised.

1994-1995 The first phase of construction, which consists of the black-box theater, the painting studio, and the music studio, begins in September, 1994. Thompson and Rose provide a set of 101 construction drawings done by hand. Dean Sandroni, the construction manager, admits that it took "awhile to get the vision in my head." He is in constant communication with the architects regarding the project, which at 16,000 sq ft, has a budget of $2.5 million. Some unresolved building parts are drawn by the architects in the field; other issues are handled by phone or fax. Sandroni calls the continuous routing of detail questions from the sub-contractors to him then to Thompson and Rose and back to him "correspondence through shop drawings." Materials are debated from a cost point of view. In the case of the lead-coated copper cladding and roofing, for example, the architects argue convincingly for the life-cycle cost benefits.

By sprinkling the site with only three of the planned six buildings, the character of the discrete forms is visible, but not the overall intent of creating hybrid indoor/outdoor space in between. *(text continues)*



SCHEME 4



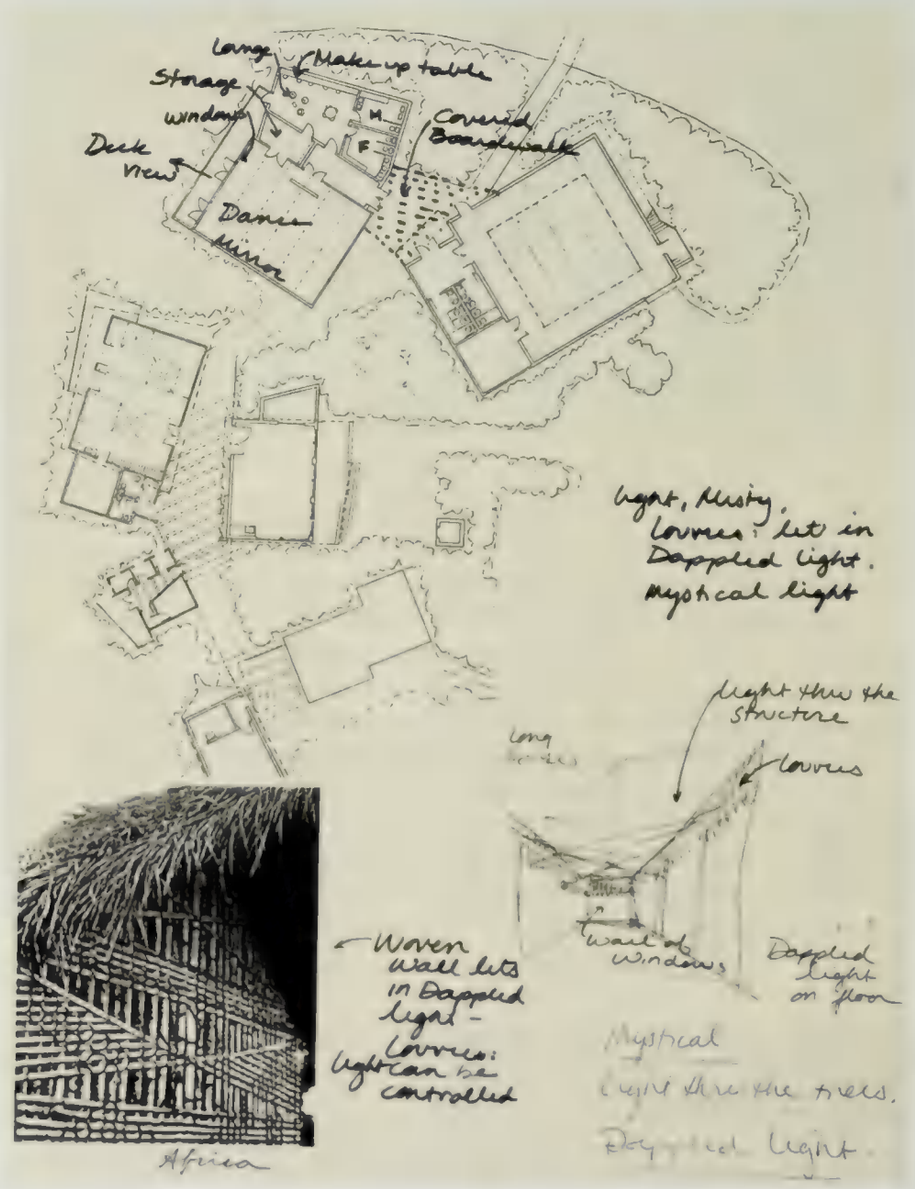
SCHEME 5

A. *Administration*
B. *Amphitheater*
C. *Dining/meeting*
D. *Future driveway*
E. *Field house*
F. *Master artists cottages*
G. *Associate artists*

1. *Black box theater*
2. *Dance support area*
3. *Dance studio*
4. *Existing walkway*
5. *Outdoor work area*
6. *Sculpture studio*
7. *Film/video studio*
8. *Painting studio*
9. *Dark room*
10. *Storage*
11. *Music studio*
12. *Library*

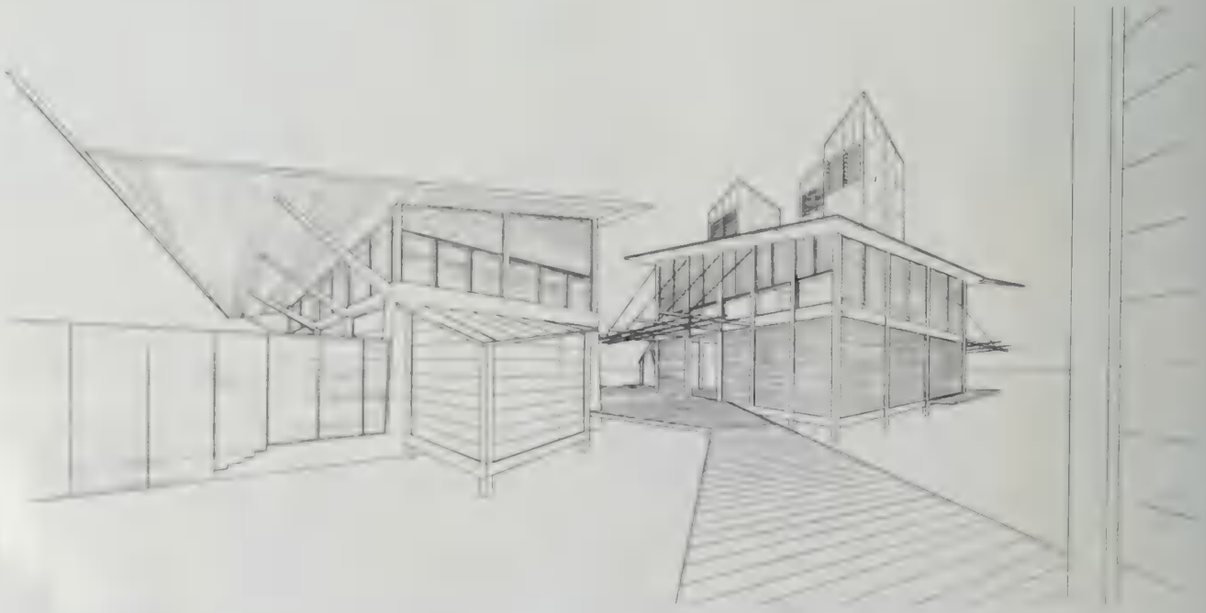
of the schemes interpret the "performance" spaces—the dramatic artists' black-box theater and the dance workshop—as the ACA's frontispiece, placing them between the existing artists' living quarters and the existing administration building. All schemes show studios grouped together to encourage collaboration across disciplines. Another strategy, not shown here, was also presented at the interview. The option of grouping all the program functions into a single, large-scale building was presented by the architects as a "don't" since they considered it disruptive to the site's ecology.

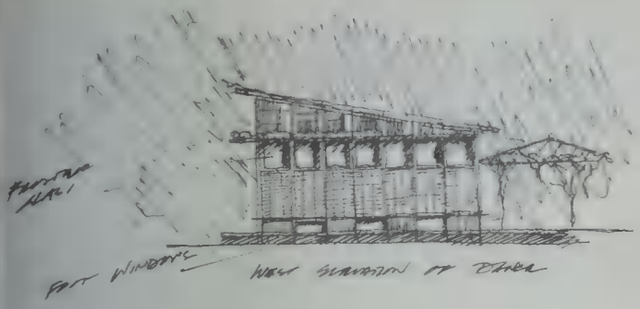
In their research for their job interview, the architects studied buildings at the same latitudes or more tropical regions like Africa (below) for ideas on materials and shading.

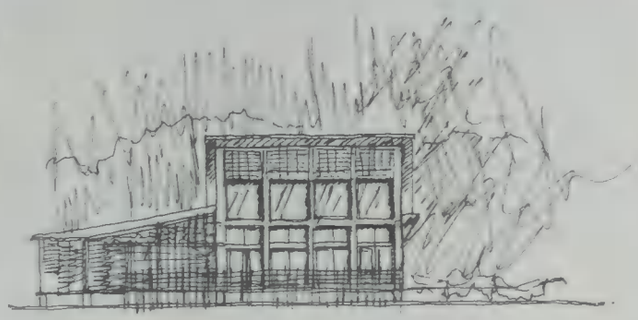




The buildings are set on concrete footings so that they barely touch the ground. The boardwalk is laid on pilings.





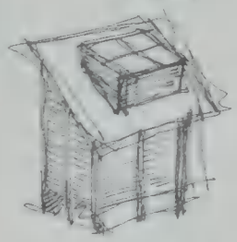


A series of schematic design sketches documents the way Thompson and Rose studied roof overhangs to create a visual dialogue between buildings. Trellises over the boardwalk are intended to further define communal gathering areas.











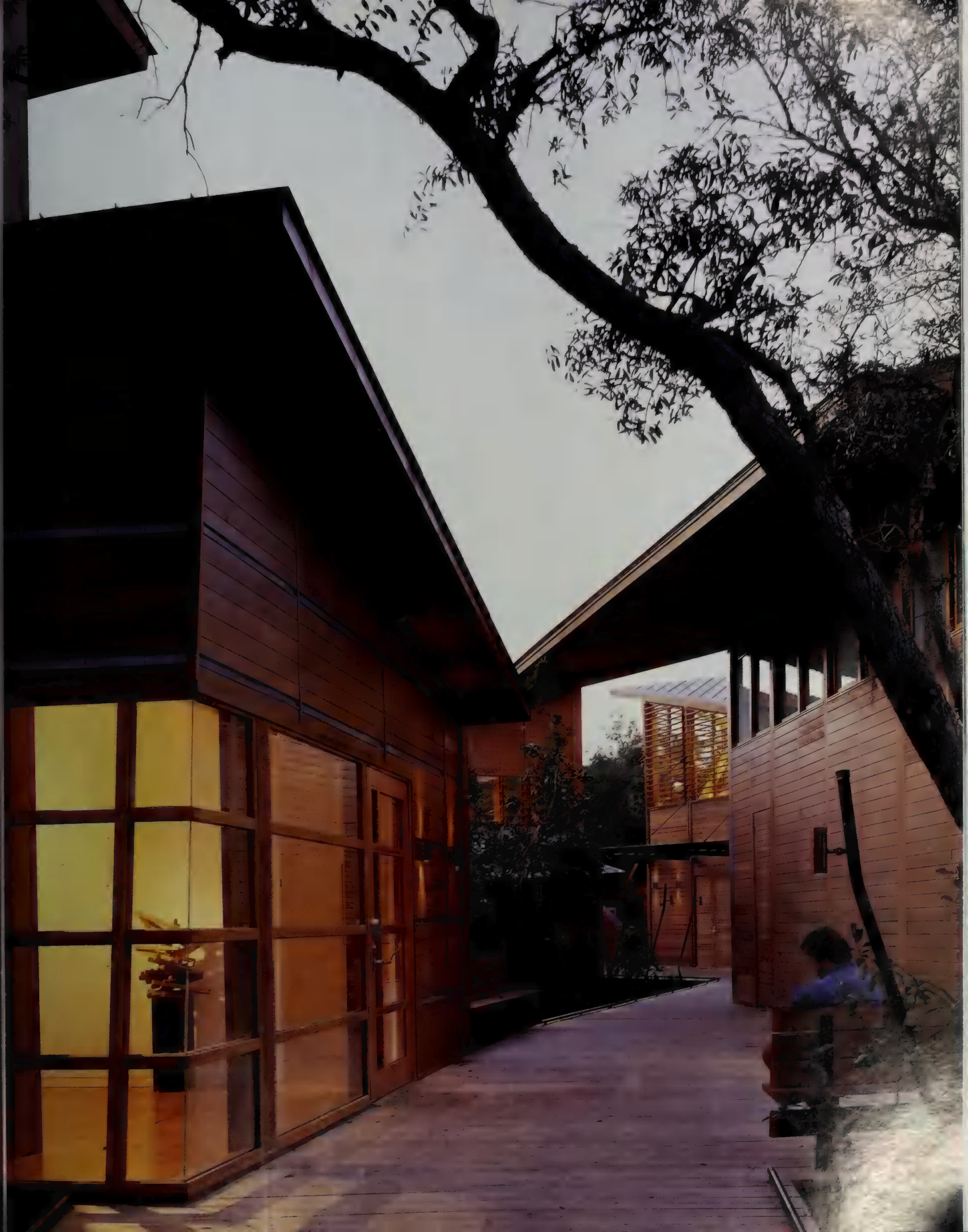
A sectional model of the painting and sculpture studios shows what Rose calls the "structural exhibitionism" of wood trusses.







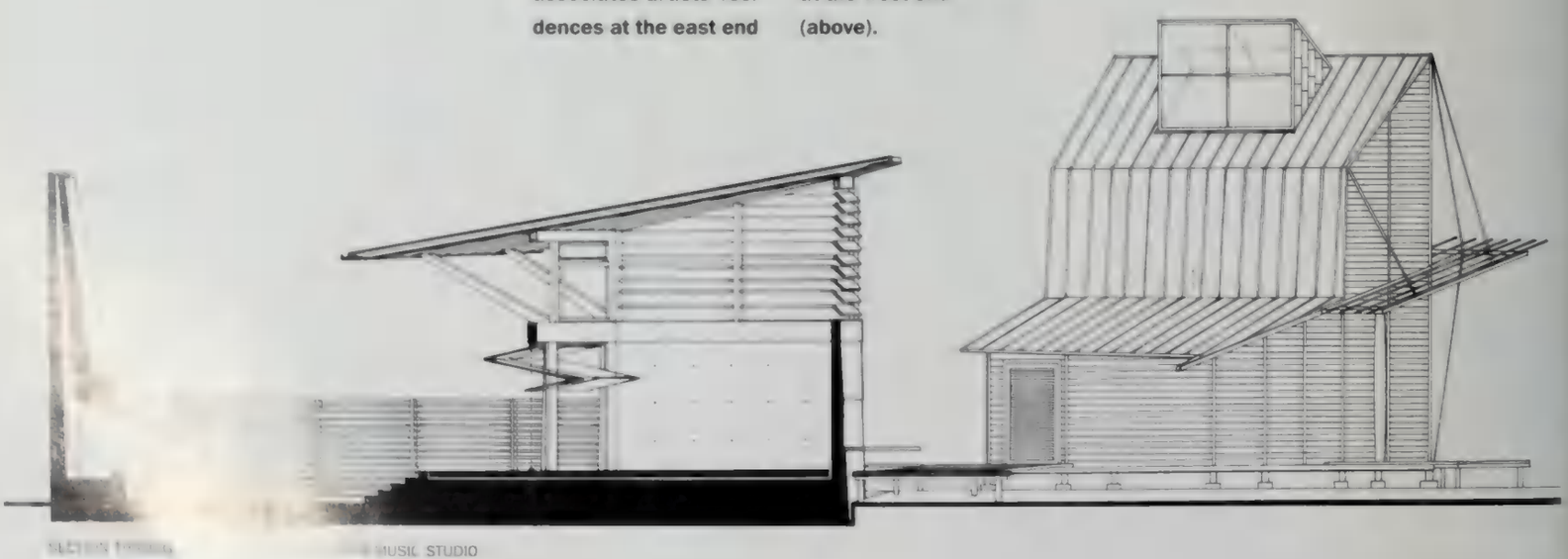
Lead-coated copper roofs poke out over the foliage (above), but from ground level the buildings are always surrounded by scrub oaks and palmettos (left). The boardwalk widens at the entrance to the theater, creating a gathering space between it and the dance studio (opposite). Each building has its own rhythm of Mahogany panel proportions and lead-coated copper inserts.



1. *Black box theater*
2. *Gallery/reception*
3. *Dance studio*
4. *Dressing room*
5. *Sculpture studio*
6. *Outdoor work area*
7. *Painting studio*
8. *Audio room*
9. *Music room*
10. *Library*



The boardwalk makes the shape of a loose "C" through the dense foliage, linking the associates artists' residences at the east end of the ACA grounds with the master artists' cottages and the administration building at the west end (above).



SECTION THROUGH MUSIC STUDIO







Roofs tilt toward one another and the jungle, suggesting views and relationships among the artistic disciplines. The painting and sculpture studios have parallel profiles (above). The upper portion of a dance studio wall leans almost 10 degrees toward the jungle (far left), while the library rises over Turnbull Bay for a mezzanine level view (near left). Painted steel trellises will eventually be covered with foliage.

Responding to the elements

New Smyrna Beach, on the east coast of central Florida, may seem like an unlikely place for an artists' community where people in disciplines from painting to music come for residences of three weeks or longer. "Why New Smyrna Beach?" jokes Doris Leeper, a sculptor and environmentalist who founded ACA after her own Rockefeller Foundation-sponsored residency in Winston-Salem, N.C., in 1977. "Because I live in New Smyrna Beach and because I thought of it." Client and architect were equally concerned about preserving the site's native growth of scrub oaks, palmetto bushes, and pineforest. Trees and other foliage were removed only as buildings were going up in their place, says construction manager Dean Sandroni. Snow loads are not a concern, but hurricanes are, so the striking roof forms were studied for potential uplift. Cables help hold them down, as do extra-sturdy fasteners. Thompson and Rose used a sun-angle calculator to measure the precise position of the sun relative to each building. Although air-conditioning is a must in summer, deep southern overhangs and screened sliding-glass doors and windows provide enough cooling for part of the year. The painting studio has operable louvers to induce natural exhaust of paint odors. With torrential downpours common, the architects made the most of what can be a water show: Each roof discharges to one dramatically attenuated lead-coated copper scupper, which pours, waterfall-like, into the dense foliage (above).

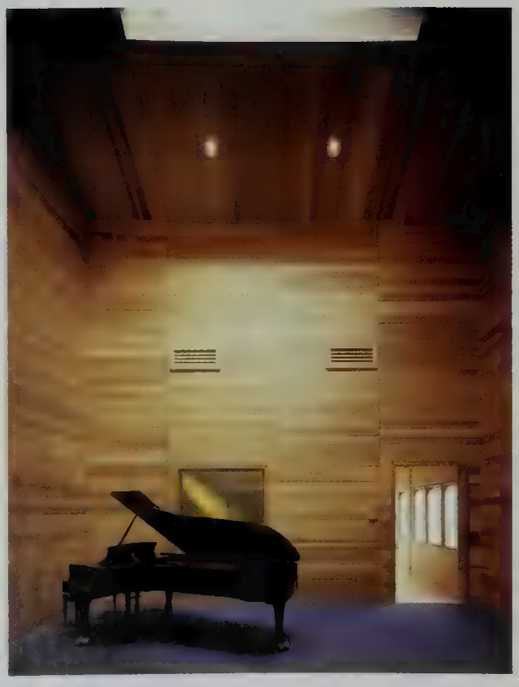




The sculpture studio, grounded by a battered concrete wall (foreground of photo left and opposite bottom left), opens to an outdoor work area. The music studio (background of photo left and opposite bottom right) is inward-looking. The boardwalk provides vistas through the buildings and into the dense foliage. The boardwalk also serves as a utility corridor: Wiring and plumbing conduits are hung underneath.

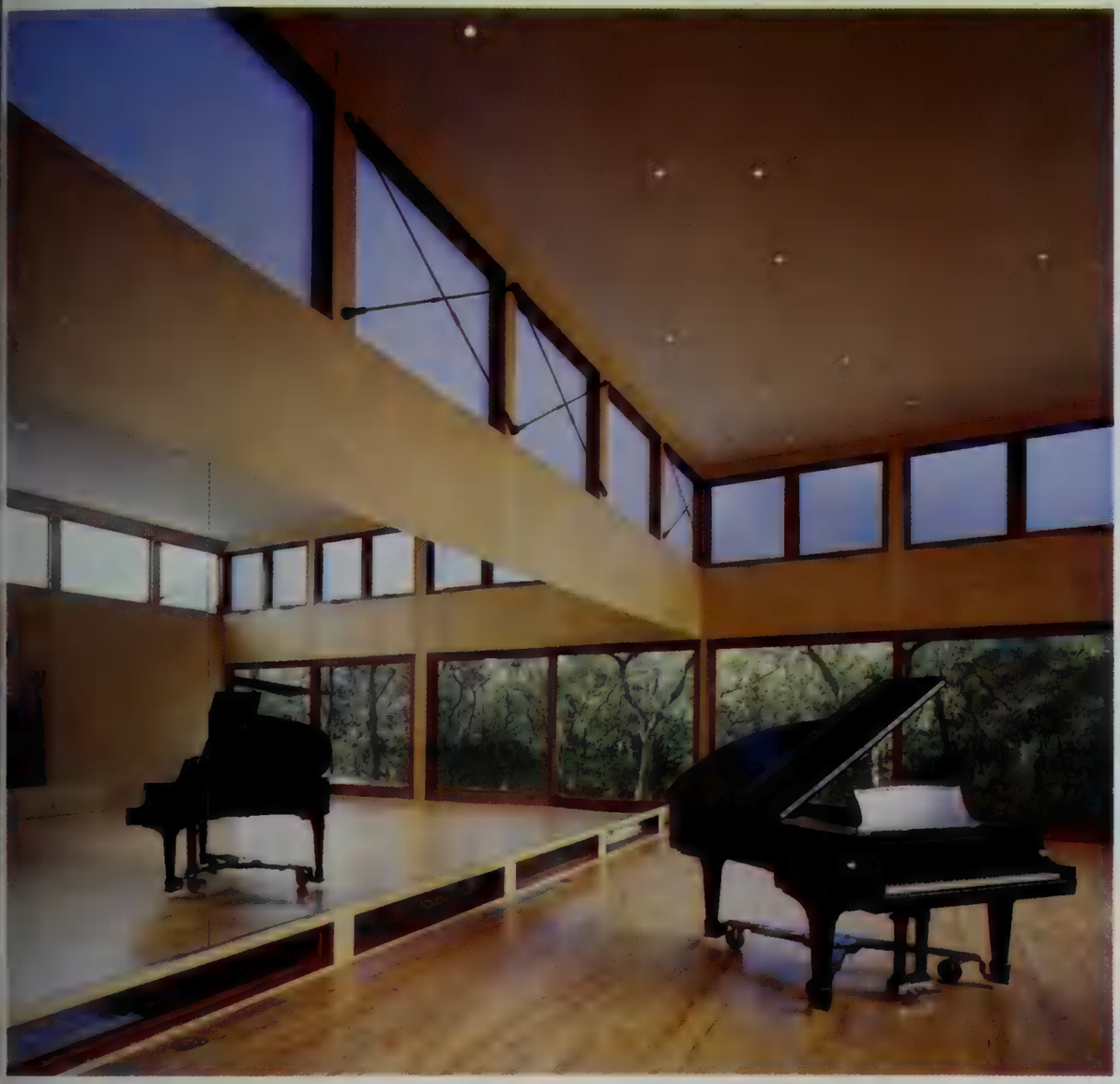






The sliding glass doors of the dance studio open to a semi-private deck (above). The sculpture studio faces north and louvers shade east and west sides (far left). The music room is lined in cedar (near left).





Windows of sand-blasted glass line the upper edges of the dance studio, while dancers' feet can be seen from the outside through clear bands of glass (left and below). "The dancer, moving in the zone between these two [types of] windows, hovers between earth and sky," wrote the architects of their intention. In the painting studio, light is filtered through louvers and skylights (opposite).



"We could take elevation shots" for the architects' portfolio, says Rose. "We have buildings supporting an idea," explains Rose. "But the idea isn't there." The architects are concerned that the second phase will never come, its timing determined by the flow of financing and the contractor's schedule since Epoch Properties, as a donation to the ACA, is doing the job at cost. And so was Fetscher, who later admits: "I was worried we'd build one phase and loose momentum. In fact, the reverse happened."

MARCH 1996

Six months later, with the expectation of soon receiving a $250,000 state grant, the second phase of construction begins. These three buildings go up quicker because, says Sandroni, by now he knows what the architects are looking for. Oversized wood doors are covered in lead-coated copper for extra rigidity. They are similar to doors in the first phase that Rose says hadn't met specifications and warped from the extreme heat and humidity. The concrete base of the sculpture studio, intended to be "of the earth" like the discipline itself, is a challenge for the construction crew because of its unusual detailing. A mock-up is done of the intricate formwork, which tapers as it rises, to achieve the battered look desired by the architects. A glass canopy over the dance studio entrance is deleted from the design by Fetscher, who is worried about upkeep. It's replaced with a black-painted steel trellis similar to others in the project. An off-the-shelf spiral staircase rather than a custom stair is the only significant change to the library.

FEBRUARY 1997

The project is dedicated as part of a celebration of the ACA's 20th anniversary, with artists who have completed residencies paying tribute to the program and the newly named Leeper Studio Complex. Leeper herself calls it "a remarkable job: More than we envisioned when we started." With an endowment of $2.7 million, Fetscher says her ongoing task of approaching potential donors for the money to cover her annual operating budget of nearly $1 million is made easier by her new showpiece. "People will invest more easily in our future," she says. "They now know we're serious. We have our history and now we have our buildings." ■

Manufacturers' Sources

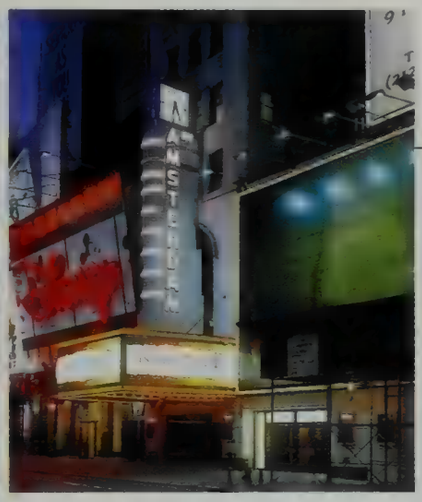
Mahogany windows, central-pivot and sliding glass doors: *Duratherm Window Corp.*
Sandblasted glass: *Solar Seal Co.*
Stainless-steel locksets, hinges: *Sargent Mfg. Co; Stanley Commercial Hardware*
Aluminum-finished closers: *LCN*
Stainless-steel exit devices: *Von Duprin (5500 Series)*
Stainless-steel pulls: *H.B. Ives*
Stainless-steel cabinet hardware: *Häfele America Co. (Rafix)*
Birch, maple-veneer plywood: *Custom by Royal Cabinets, Inc.*
Interior finishes: *Southern Paint*
Resilient flooring: *Forbo Industries (Marmoleum)*
Exterior lighting: *Nightscaping (Duoliter)*
Interior high-bay lighting: *Electric*
Downlights: *Lightolier*



The seating boxes of the New Amsterdam Theatre had to be completely removed from old photographs. The originals were removed to make room for a wide Cinerama screen.

A spectacular Broadway revival, the NEW AMSTERDAM THEATER glows on 42nd Street once again.





by John Margolies

The New Amsterdam's greatest years were from 1913 to 1927, when Florenz Ziegfeld ruled the stage. In 1937, the Art Deco marquee was added when the New Amsterdam became a movie house.

As a visitor enters Disneyland in Anaheim, California, the first of the theme areas encountered is a romanticized recreation of Main Street USA. There, lines of slightly underscaled interconnected buildings, including a small theater, celebrate the glory which once was the commercial center of every town, both large and small, across America. Over 40 years later, the Walt Disney Company has come full circle. It became involved with a real "main street" in the center of Manhattan as it leased and then restored the once and once again glorious New Amsterdam Theater on 42nd Street near Times Square, as a venue to present its own spectacular stage productions and movies.

The old theater had fallen on hard times after its auspicious start as a place to stage "spectaculars" from the entertainment circuit run by impresarios Marc Klaw and Abraham Erlanger. Klaw and Erlanger, who usually took over older existing theaters to stage their productions, envisioned the New Amsterdam as the flagship in their chain. They commissioned theater architects Henry B. Herts and Hugh Tallant to undertake the project, and allowed a liberal budget for creation of a grand theater. The 1750-seat New Amsterdam opened on October 26, 1903, with a production of *A Midsummer Night's Dream*. It cost $1.5 million, double or possibly triple the budget of typical facilities built at that time.

During its first 10 years, the New Amsterdam presented a wide variety of entertainment: operettas by Victor Herbert and Franz Lehar; more Shakespeare; George M. Cohan's *Forty-five Minutes from Broadway;* and kiddie fare, including "Mother Goose" and "Humpty Dumpty." But the greatest years of the New Amsterdam didn't begin until 1913, when Florenz Ziegfeld began his long affiliation with the theater by staging his renowned Ziegfeld Follies there until 1927. In 1937 the theater, designed for stage productions, was sold and converted into a movie house. A new and very up-to-date streamlined marquee and entry were added, and further altered in 1947, and the relatively shallow and wide auditorium, well suited to live stage productions, became a not-so-effective place to see movies—later movie houses usually had narrower and deeper auditoriums better suited to the dimensions of film projection. The 12 seating boxes in the auditorium, six on each side, were torn out in 1953 to make way for a wide Cinerama screen. The New Amsterdam then became a second-run movie palace as both it and the Times Square area declined over the next decades. The New Amsterdam closed in 1982, and was then acquired by the Nederlander Organization. It was abandoned altogether when the new owners discovered structural problems in the roof. New York State bought the New Amsterdam from the Nederlanders in 1992 for $275,000 and invested more than $1 million to stabilize the structure. When New York City and New York State each provided low-interest loans of $13 million to the Disney Company, its architecturally enlightened chairman and CEO, Michael Eisner, commissioned New York architect Hugh Hardy to undertake the massive restoration of the theater, which cost some $36 million.

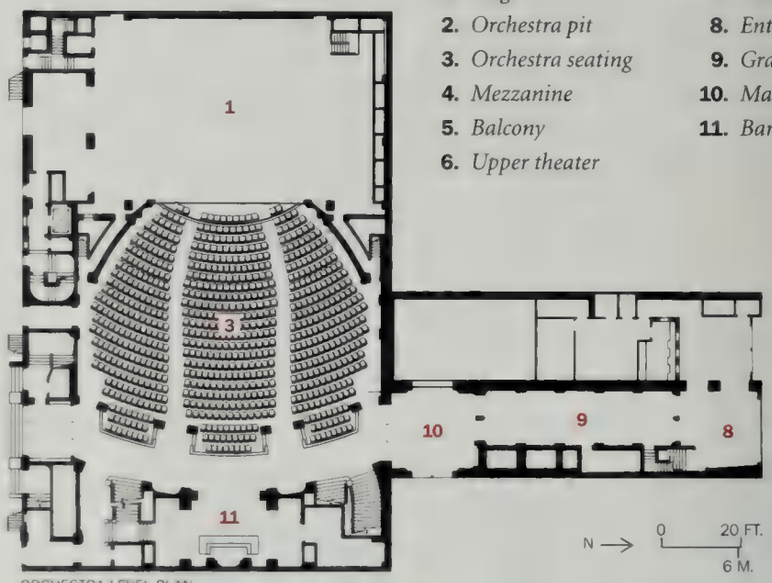
As a building, the New Amsterdam Theater is a marvel of its time, hailed by one turn-of-the-century source as being "beyond question

John Margolies is a nationally renowned photographer, chronicler, and lecturer on American popular culture and design. He is the author of Home Away From Home, Ticket to Paradise, *and* Pump and Circumstance.

Project: *New Amsterdam Theater New York City*
Client: *Walt Disney Theatrical*
Architect: *Hardy Holzman Pfeiffer Associates—Hugh Hardy, FAIA, partner-in-charge; Stewart Jones, AIA, project director; Maya Shali, project architect; John Mueller, construction architect; Kristina Walker, interiors*
Consultants: *DeSimone Chaplin and Dobryn (structural); Edwards and Zuck (MEP); Theater Projects Consultants (theater); Jaffe Holden Scarbrough Acoustics (acoustic); Fisher Marantz Renfro Stone (lighting); Building Conservation Associates (historic restoration consultant); Jonas Gillman Consulting Architect*
Construction Manager/General Contractor: *Tishman*



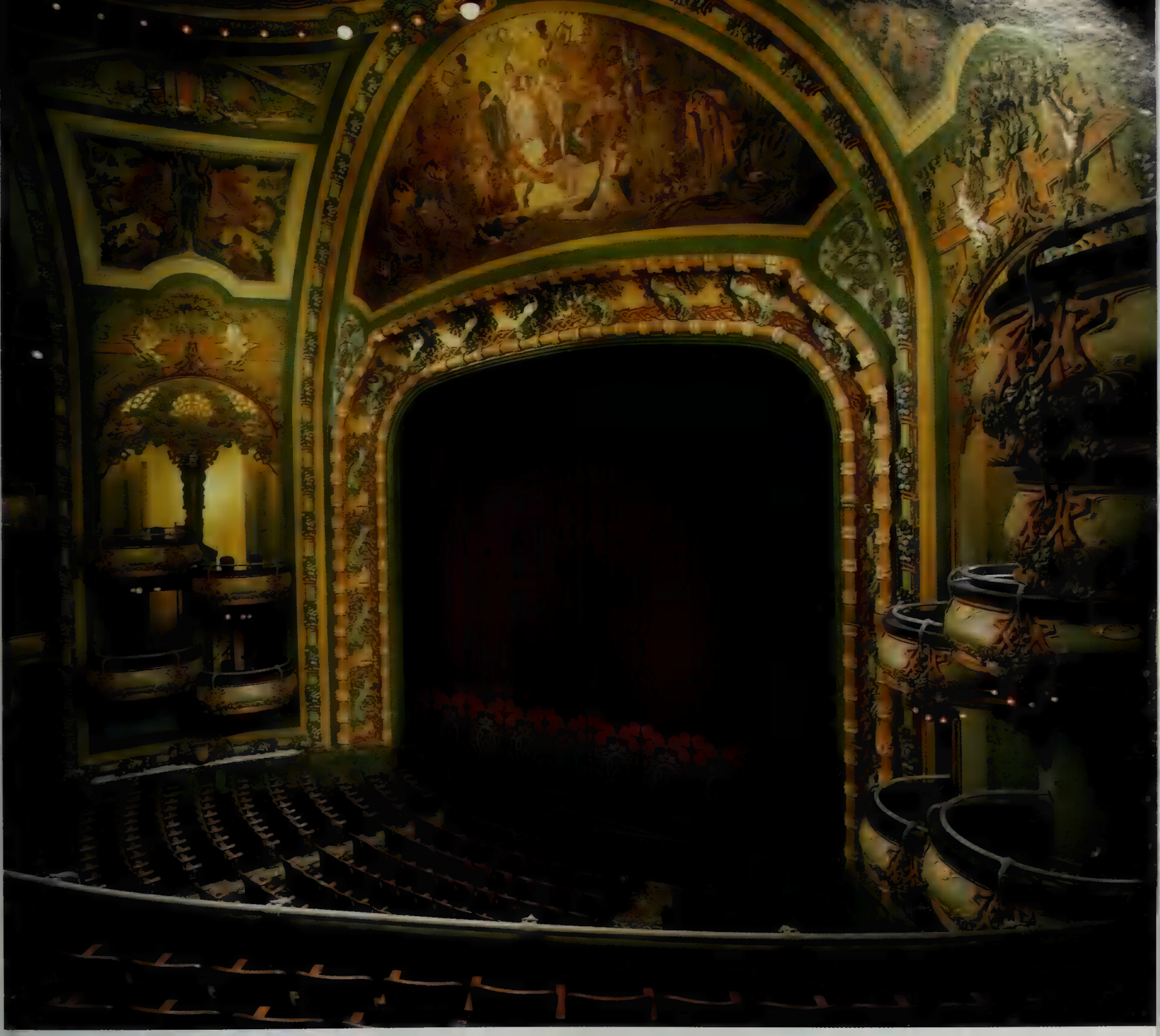
SECTION THROUGH AUDITORIUM



ORCHESTRA LEVEL PLAN

1. *Stage*
2. *Orchestra pit*
3. *Orchestra seating*
4. *Mezzanine*
5. *Balcony*
6. *Upper theater*
7. *New Amsterdam room*
8. *Entry foyer*
9. *Grand promenade*
10. *Main foyer*
11. *Bar*



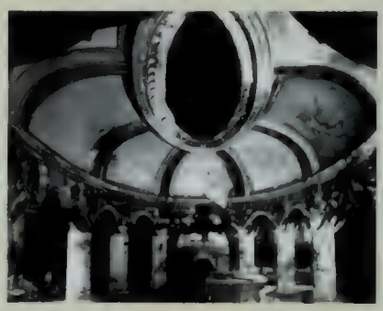




The Grand Promenade leads from the entry foyer to the main foyer (opposite). Panels adorned with scenes from Shakespeare and Wagner in bas relief are located above the wainscoting. Lighting pendants were recreated for the space. Period postcards, such as the one at left that dates to 1908, were invaluable in showing how the theater and its extensive decoration originally looked.

The Decline and Revitalization of a Great Urban Theater

In 1937 the New Amsterdam was converted ad hoc into a movie house, complete with an Art Deco marquee, and later became a second-run movie house as both it and the Times Square area declined over the next decades. The seating boxes had been ripped out in 1953 to make way for a wide Cinerama screen. It became *the* place to see double features, a dubious distinction that at least allowed the theater to survive. In 1982, the theater finally closed. Later the Nederlander Organization acquired

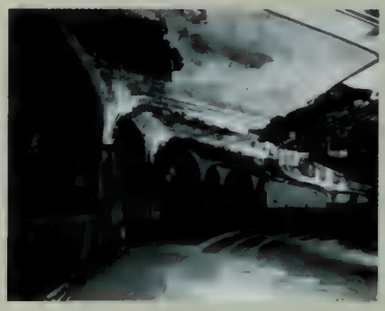




the theater intending to use it for stage productions, but abandoned it when structural problems were discovered in the roof. For five years it sat with the roof partially opened to the sky, and to corrosive decay and water damage.

[illegible] anything else, the the[illegible] stabilized by repairing the [illegible] and adding temporary [illegible] to the plaster and [illegible] associated structural [illegible]

Instead [illegible] ating the theatre [illegible] spic-and-span [illegible] Hugh Hardy decided to [illegible] an "interpretive" [illegible] "I [illegible] want to rob the theater of its own history," he explains. "The rule that guided us was to make a seamless whole, which acknowledged the passage of time." So, for example, the facade with its Art Deco marquee was retained instead of recreating the original from 1903. The extravagance of the decorations on the interior—original decorative murals and interpretations of missing murals; terra-cotta balustrades

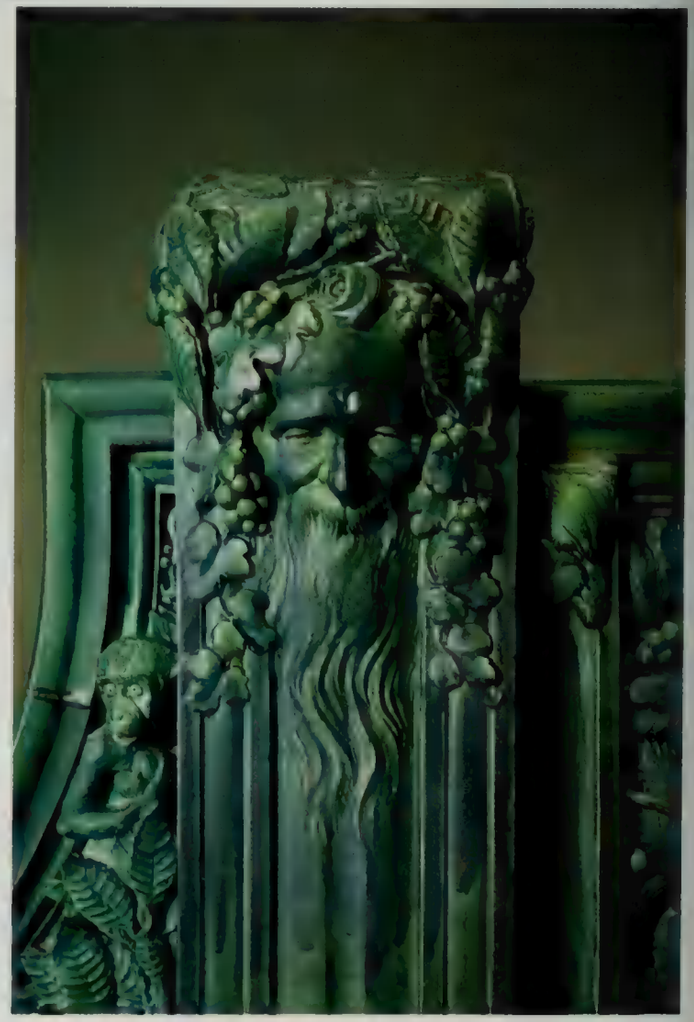


(below right); decorative panels (top right), and bas reliefs—were rendered in more subdued tones (see "Progress" mural and stained glass "skylight", opposite) befitting the passage of time.

Some of these decorative elements were in relatively good condition, however, compared to the spaces like the Lounging Room, (top left), and the auditorium (below left and above). In addition to recreating long lost murals and woodwork, the 12 seating boxes, each named for a flower, were rebuilt based on historical evidence. One original lighting fixture—a "Dream Maiden" (above right)—mysteriously stashed in a crawl space 35 ft above the stage and serendipitously discovered—was reproduced to decoratively light the orchestra level. Carpeting, seat coverings, and stage curtains are modern interpretations of what might have been.

The original color scheme was even brighter than the restoration, partially because the original lighting in 1903 used direct-current, and was much dimmer, therefore bright colors were needed to offset the lack of house illumination. The new and much brighter house lighting prompted Hardy to keep the newly interpreted colors mellower and resonant so that a balance similar to the overall effect of the original would be achieved.







The "Progress" mural was restored to muted tones, rather than its bright original colors. The "skylight" had been painted over and also was restored.

the most gorgeous playhouse in New York. Architecturally it is near perfection." It is a rather complex building, or pair of buildings actually. A narrow 11-story structure extends out to the facade front located along the expensive real estate of 42nd Street, and contains an entrance vestibule at ground level and office space above. Most of the scope and grandeur of the theater was housed in a wider and deeper structure built on the less expensive land along 41st Street. This larger structure contained the oval-shaped main auditorium, framed by seven arches, that seated a total of 1,750 people in the orchestra, 12 seating boxes, a cantilevered mezzanine, and a second balcony hung from the roof trusses.The seating capacity was increased to 1,840 in the restoration. A second smaller rooftop theater is no longer in use.

The auditorium itself is a mind-boggling extravaganza of splendor, which Hardy describes as an "enchanted forest" with nearly an infinite amount of decoration. It is said to have been one of the first uses of the Art Nouveau style in the United States, but although there are many curvilinear Art Nouveau flourishes, the sum of the decorative treatment is an encyclopedia of eclectic styles. Sophisticated theatergoers might be overwhelmed by the "more is more" philosophy which enhanced this "palace for the people." The swanky sumptuousness was intended to impress, to instill awe, and to create a fantasy world, an overture to the dramatic presentations that were but a short inductive leap from the physical atmosphere of the house. The theater was structurally innovative as well. It used skeleton-steel construction throughout instead of masonry, and this provided a maximum amount of interior space. A cantilevered balcony—another innovation in the theater's design—allowed unobstructed views of the stage from nearly every seat in this house. The interior color scheme, rather than the usual red and gold used in most theaters of its time, was and is what Hardy calls a "pastel effect" achieved with tones of mother-of-pearl, violet, green, pink, and ochre. Commenting upon the color scheme in *The New York Times* in 1903, Charles DeKay waxed poetic about it having "a subdued, yet gay effect like a meadow in Springtime sowed with daisies, violets, and flowers of slightly stronger hues."

In the middle decades of the 20th century, there was also a [illegible] prejudice against such buildings. The theaters, built both before and [illegible] same time as the structures of the stripped-down Modern mov[illegible]

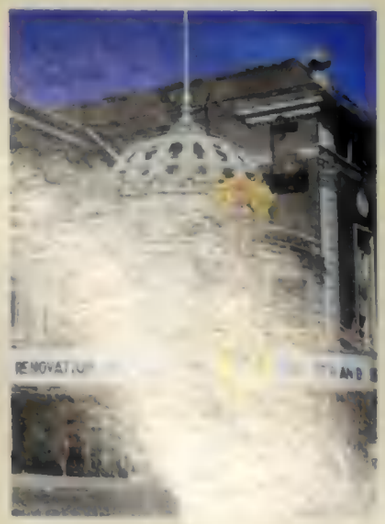
REBORN GEMS ACROSS THE U.S. ALSO HELP REBUILD DOWNTOWNS

The renovation and reuse of the New Amsterdam Theater is just one of the latest examples of an old theater being saved in the U.S. Earlier this year, Peery's Egyptian Theater in Ogden, Utah, had a grand reopening after years of fund-raising through a broad-based community effort. In the past quarter century, nearly 200 old movie theaters have been restored. The benefits from saving old theaters are greater than just adding a theatrical auditorium to the community. They also serve as an impetus for the resurgence of downtown areas.

These quaint and sometimes garish buildings became an endangered species, and as the commercial cores of cities began to stagnate, they were abandoned. Theaters themselves were even more vulnerable than many of the other downtown buildings because their very reason for being came into question. Some remained pretty much as they were, and became halls for religious worship. Other reuses, such as antique malls, bowling alleys, and supermarkets, left the exterior shells intact, but resulted in the destruction of the interior spaces.

Downtown movie theaters were supplanted by the faceless suburban multiplexes, the advent of the VCR for home movie viewing, and finally the nationwide spread of cable television systems that allows viewers to order up any movie by telephone. None of this bodes well for the old movie theaters. The carnage of the euphemistically named "urban renewal" targeted many of the old commercial streets where the theaters were located.

Finally, after so many of these great "palaces of the people" had succumbed to the wrecking ball, interested groups began to come together to rescue the finest remaining examples, not only because the buildings are important architecturally, but also because they are artifacts of a time not long ago when American culture was very different. And there is the realization that entertainment events at these theaters can help give people reasons to go downtown instead of to the cineplex.







The Strand, Shreveport (left), sports a Baroque dome and fanciful neon marquee. The Al Ringling, Baraboo, Wis. (above) has a terra-cotta facade.



The Dakota, Yankton, S.D. (above), has an Art Deco facade added in 1941. The Eygptian, De Kalb, Ill. (left), features likenesses of Pharaoh Ramses II.

The St. Louis Theater, now called Powell Hall, was one of the earliest to be restored, and now houses the St. Louis Symphony Orchestra. Other early successes include the Fox in Atlanta, the Kimo in Albuquerque, and the Warner in Erie, Pa. The restoration of the Capital Theater in Yakima, Wash., became a process of authentic reproduction when the theater burned down as it was being restored.

In fact, there is now a national movement in the U.S. to save and restore at least some of the survivors. Two organizations founded in the past 30 years are dedicated to providing information and expertise to people in communities interested in saving their old theaters: the Theater Historical Society of America in Elmhurst, Ill., and the League of Historic American Theaters based in Baltimore. These organizations provide historical research and access to organizational and technical expertise to help communities set about creating their own landmarks.

The theaters shown here are just a few of the rescued survivors. They have become the pride of their communities, and show that even smaller communities can restore their theaters.

Shreveport's Strand (bottom left) was designed by Emile Weil and opened in 1925. Its facade is now dominated by neon and an elaborate Baroque dome. After a long renovation process, it reopened in 1984 as a performing arts center.

The Egyptian (top center), in De Kalb, Ill., was built by architect Elmer F. Behrens. It features twin depictions of Pharaoh Ramses II on its glazed terra-cotta facade and a scarab stained-glass window. The 1,500-seat theater opened in 1929, and movies were shown there until the 1970's, when it was remodeled into a performing arts center.

The Al Ringling Theater, in Baraboo, Wis., was designed by Rapp and Rapp and built by the oldest of the Ringling Brothers of circus fame as a gift to the citizens of Baraboo. The 800-seat theater is considered to be the first real movie palace, and has been in continuous operation for movies and live events since 1915.

The Dakota (top right), in Yankton, S.D., was built as an opera house around 1900 by D. W. Rodgers, and was given an Art Deco facade of ceramic tile in 1941 in its glory days as a movie theater. It has been bought by community volunteers and is being restored as a performing arts center.

Now residents of these towns have a splendid reason to come back downtown and once again experience the urbanity and excitement that Main Street still offers.



The New Amsterdam Room, in the basement below the theater, was originally the "Lounging Room."

architecture, became a source of ridicule for those who thought they knew what "good taste" was all about. Taste for *whom* was always an issue in the design of such buildings. Theaters were designed not for the cultural elite, but for everyday people unaware of the finer points of so-called "design." The New Amsterdam was praised from the beginning for having "developed an increasing tendency to meet this happy evolution of the general taste." The theater is impressive, it was said in 1908, because "mere gorgeousness in itself brings neither pleasure nor satisfaction to the cultured mind, but here we have the restfulness of change in the harmonious combination of color, form, and general design, in which flowers, fruits, and animal types have been skillfully combined, that does not meet the eye in the everyday walks of life and which the true artist in decoration learns to turn to account." Whether one agrees with this rose-colored commentary or not, eye-catching decor and exotic names were nearly always a part of the theater's function. Entrepreneurs needed to attract customers willing to pay for "entertainment" as well as for the "real" necessities of life.

The New Amsterdam renovation is as important to the New York City of today as the original was. For years, city, state, and community groups marshaled their resources to use new development to provide funds to renovate the old theater row along 42nd Street. Areas such as this are essential in providing vitality to an urban environment. The success of New Amsterdam bodes well not only for New York, but as an object lesson for cities across the country trying to revive their own downtowns. ■

Manufacturers' Sources

Roofing: *Siplast, Inc.*

Windows: *Pella Windows*

Leather-clad metal doors: *Acme Door Co.*

Security grilles: *McKeon Rolling Steel Door*

Door hardware: *Atlantic Hardware Co.*

Paints and stains: *Benjamin Moore*

Seating: *Country Roads*

Upholstery: *Maharam*

Elevator: *Armor Kone Elevator Co.*

Carpet: *Bloomsburg*

Lighting fixtures: *Baldinger; ET Controls; C.W. Cole; Nulux, Times Square*

Custom millwork, paneling: *Midhattan Woodworking*

Plasterwork: *Donaldson Acoustics; The Balmer Studios, Inc.*

Painting: *Evergreene Studios*

Exterior restoration: *M & C Waterproofing*



Smith-Miller and Hawkinson's amphitheater roof has already withstood Hurricane Fran. Seating for movies is informal: on the grass or atop the raised, sloped letter "I," which is imprinted with the North Carolina state motto, "To be rather than to seem."

A multidisciplinary team comes together at the NORTH CAROLINA MUSEUM OF ART to create a picture-perfect combination of art and architecture.



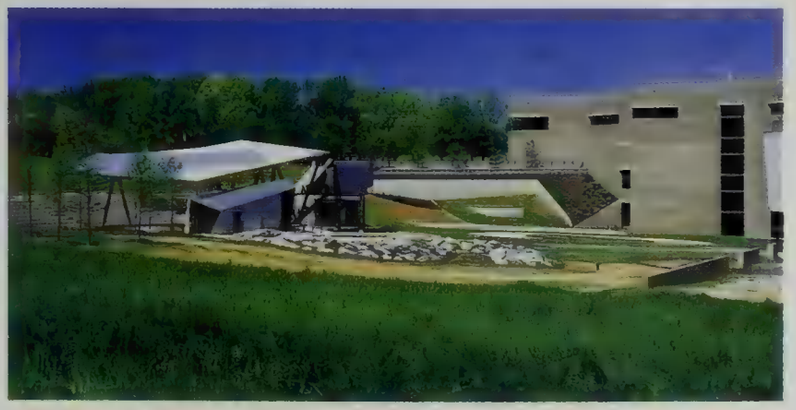
The state-sponsored museum is on a sprawling 167-acre parcel of donated land in suburban Raleigh next to a juvenile correctional center and a veterinary training facility. The outdoor amphitheater and cinema is southwest of the museum entrance.

by Karen Stein

Picture this: The North Carolina Museum of Art (NCMA), an agency of the North Carolina Department of Cultural Resources and the first state-sponsored museum in America, solicits entries for a competition for a new master plan for its 167-acre site. Teams of architects and artists from around the world compete to present their ideas to the museum's selection committee, and the ultimate winner of the competition, sponsored by a $250,000 grant from the National Endowment for the Arts (NEA), is the team of architects Henry Smith-Miller and Laurie Hawkinson, artist Barbara Kruger, and landscape architect Nicholas Quennell, with a proposal they call "Imperfect Utopia," or more informally "an anti-master plan." They propose that the landscape, unlike the fortress-looking museum with its impressive collection of Renaissance and Baroque paintings, be unstructured, relaxed, interactive, and completely indigenous. Sound like an unlikely confluence of public funding and visionary thinking? Not when this project began, some 11 years ago, when the NEA was more generous.

While the master plan remains to be fully realized, a three-acre excerpt containing an amphitheater and outdoor cinema just celebrated its public opening, complete with singing, dancing, and some 6,000 revelers. Calling this first phase "The Textualized Landscape," Smith-Miller, Hawkinson, Kruger, and Quennell have spread the phrase "Picture This" rendered in three dimensions across the site, each individual letter made up of intermingling layers of landscape, architecture, and art.

That the different artistic disciplines play off each other is clear. So did the roles of the team members throughout the years-long process. "It's uncategorical," says Kruger of the perceived stereotypical roles each team member played. "It's not as if Laurie [Hawkinson] and Henry [Smith-Miller] had the T square, I had the beret, and Nicholas [Quennell] had the shovel. It didn't work out that way." Ideas were shared and then developed individually. Each participant's own design process benefited the group. On team visits to Raleigh, for example, Kruger, who is known for overlaying words and images in provocative combinations, combed used-book stores to pore over such things as eighth-grade histories, remembers Frank Harmon, the amphitheater's associate architect. The other team members were inspired by the way she, as Harmon puts it,



Project: *Amphitheater and Outdoor Cinema, North Carolina Museum of Art, Raleigh, North Carolina*
Architect: *Smith-Miller + Hawkinson Architects—Laurie Hawkinson and Henry Smith-Miller, principals-in-charge; John Conaty, project architect; Annette Fierro, Ingalill Wahlroos, Elizabeth Alford, Brian Oster, Bennett Dunkley, Virginia Navid, Michael Hirsch, Greg Du Pasquier, project team*
Landscape Architect: *Quennell Rothschild and Associates—Nicholas Quennell, principal-in-charge; Mauricio Villarreal, Andy Moore, project team*
Artist: *Barbara Kruger*
Associate Architect: *Frank Harmon Architect*
Engineers: *Ove Arup & Partners/New York City (structural); Adcock Engineering (mechanical, electrical, plumbing); Dennis K. Hoyle and Associates (civil)*
Consultants: *Dan Gottlieb (museum project director); Claude Engle and Associates (lighting); Jaffe Holden Scarbrough Acoustics (acoustic); Judy Harmon (horticultural); SE Systems (sound); Barbizon Systems (theatrical)*
General Contractor: *Clancy & Theys Construction*

"bores into history," and joined in. The written words were a point of contact for the multidisciplinary team, observes Hawkinson, because "the text served as a way we could all integrate what we did." Harmon, a former colleague of Smith-Miller at Richard Meier's New York City office who now has a practice in his native Raleigh, is convinced it was this type of research and discussion that got the team the master plan job in the first place. "A group of mostly outsiders [Smith-Miller, Hawkinson, and Quennell are based in Manhattan, Kruger in Los Angeles], came here and helped show the committee that 'North Carolina has a rich history.'"

The programmed uses for this parcel, a combination of outdoor concerts and performances and a movie series, provided the most tangible way of getting started on the master plan, reports Dan Gottlieb, the project director for the museum. Gottlieb says the entire project was in jeopardy just as the team completed a 19-month design process in 1989, when the state announced that it would do its own plan for the region. By focusing on what he calls "a spot on the map of the master plan," the museum was able to carve out new venues for its curators and bring new attention to NCMA by doing its first site-specific work of art, all without doing something at odds with the state, its major benefactor.

These benefits were not lost on Larry Wheeler, who became director of NCMA in October, 1994, just as construction bids for the amphitheater started coming in. Though Wheeler certainly had the prerogative to cancel a project conceived during the tenure of his predecessor, he considered the project's approach "right on." He admits that he had his reservations about proceeding with the amphitheater, but only because he had plans of his own: to expand the museum. Once he determined that the proposed location of the amphitheater to the south of the building did not interfere with the logical extension of galleries to the east or west, Wheeler was eager to begin construction, having recognized that the languishing of the master plan had its effects on staff moral and the museum's public persona. Says Wheeler of his decision to give the go-ahead, even with construction estimated at slightly more than an initial $1.5 million budget: "It was important for the momentum of the museum to have some dirt flying around here."

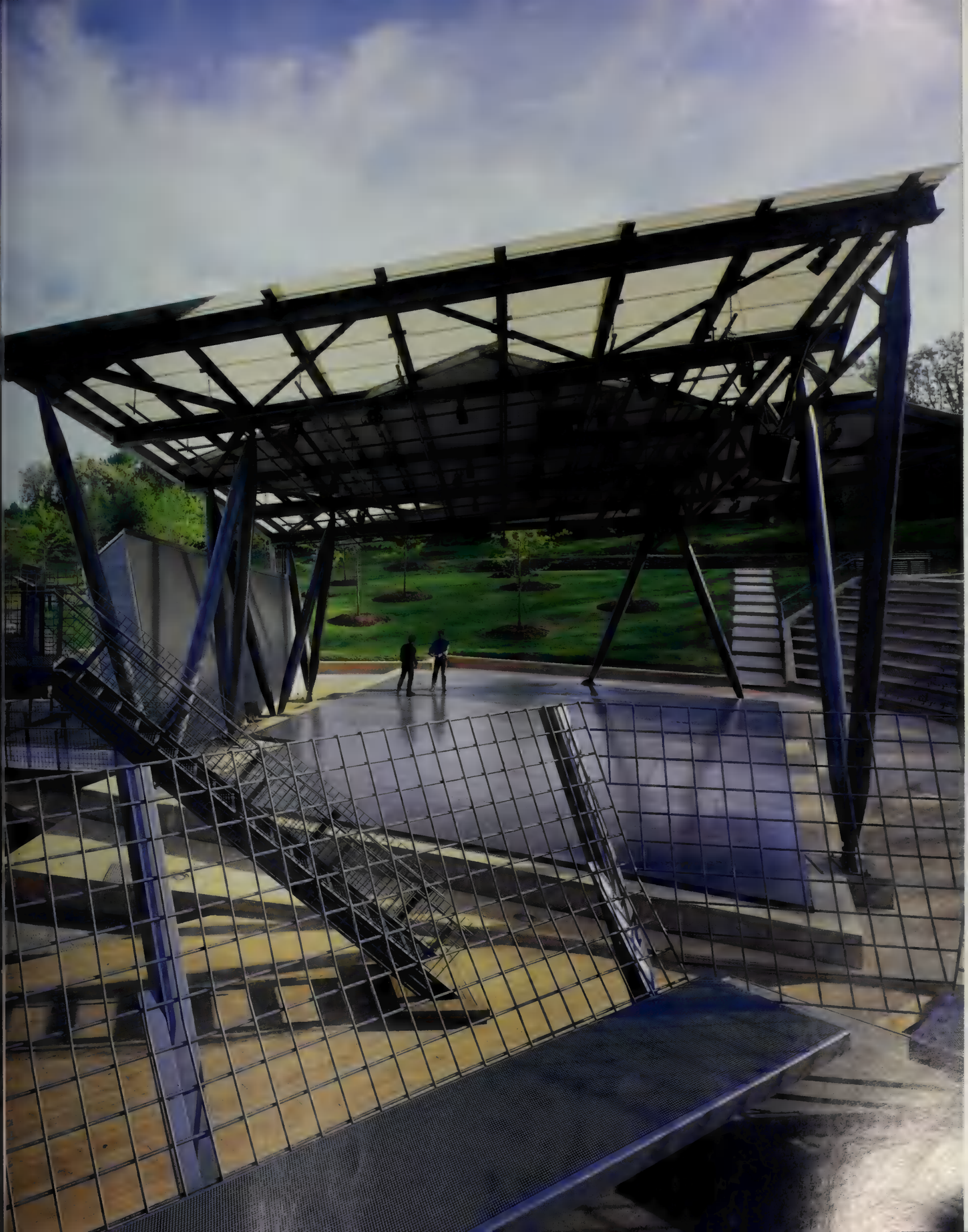
And that's exactly what happened, though at times the dirt started flying in unexpected ways, since construction occurred during what many locals say was the wettest winter they could remember. "It's a giant site work and the site kept falling down," recalls Gottlieb of the attempt to stabilize the ruddy clay soil and heighten the existing contours of the site's natural bowl. The project's biggest setback came on the eve of its public dedication and in an unexpected form: Hurricane Fran, which swept through Raleigh on September 6, 1996, knocking down fieldstone walls and eroding the site in $150,000 of damage, Gottlieb estimates.

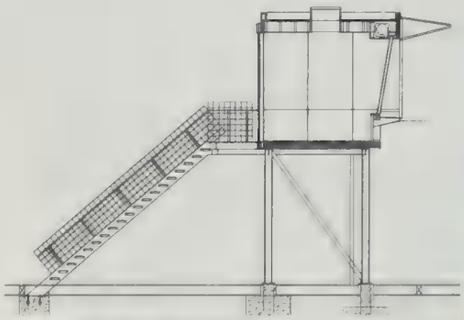
The initial master plan proposal had focused on the need to reforest what landscape architect Quennell terms a "denuded site," and the attempt at some type of healing seems to reverberate through all aspects of the amphitheater scheme from earth to art. Smith-Miller and Hawkinson were faced with the daunting form of NCMA itself, a 1960's structure by Edward Durell Stone so compromised in its realization that [illegible] massive, almost undifferentiated stone mass, which the [illegible] boulder." The architects joke that the group's [illegible] building in ivy. Smith-Miller explains: "The [illegible] a museum wall] is a parasitic device."

[illegible] cloak the building, the screen, like the amphitheater [illegible] as a contrast in exhibition form as well as content. Kruger [illegible] phrases and quotable quotations, whether inscribed [illegible] wall that forms the vertical line of the letter "P" or etched [illegible] plaques that dot the *(text continues)*

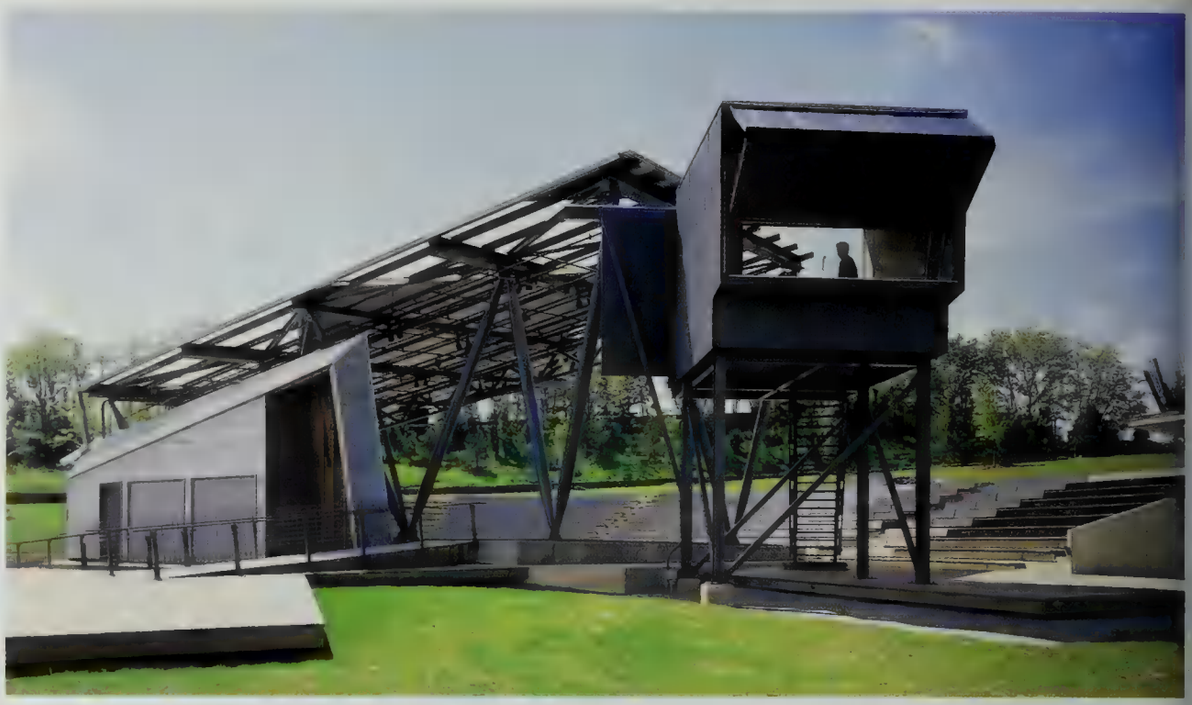


The 10-ft by 12-ft by 12-ft plywood projection booth is set on a steel frame. Built-in perforated-steel benches of the "T" can be used to watch movies or amphitheater performances.



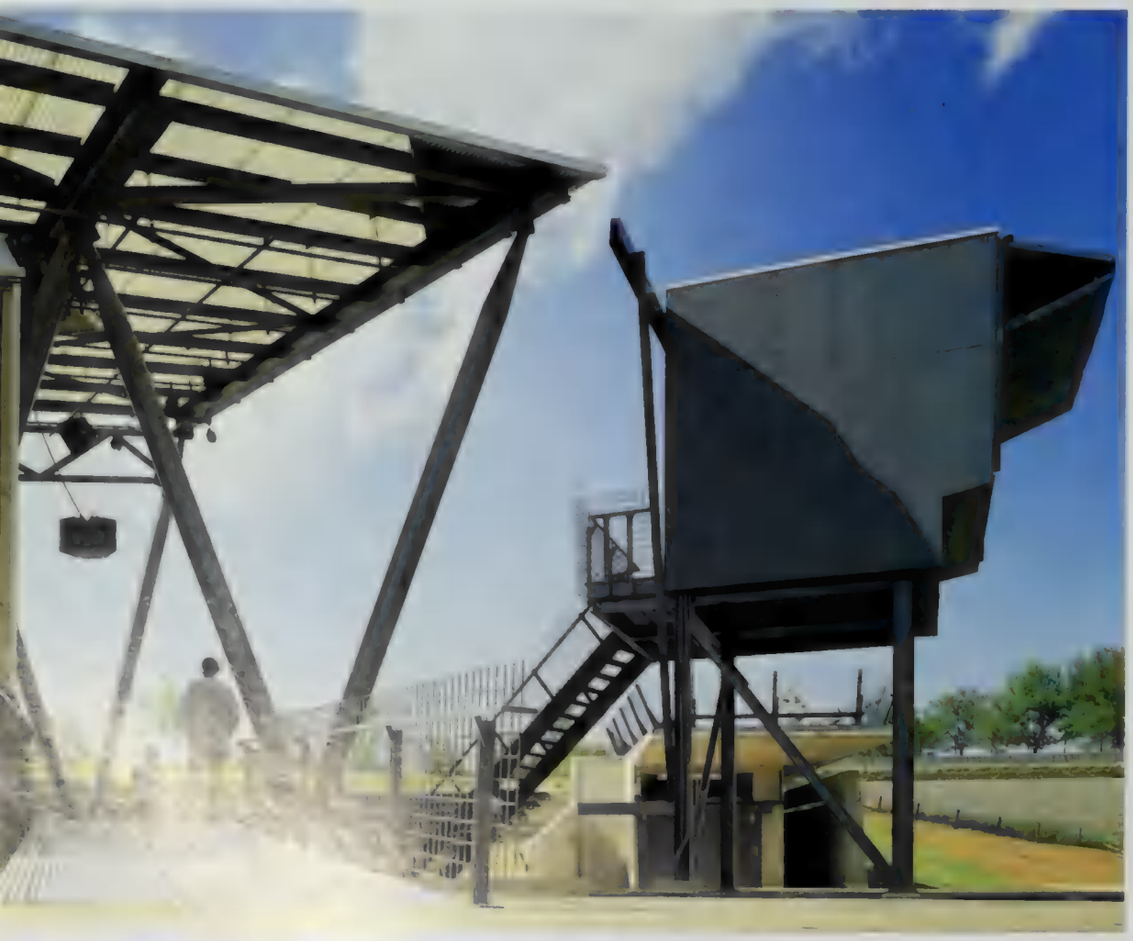


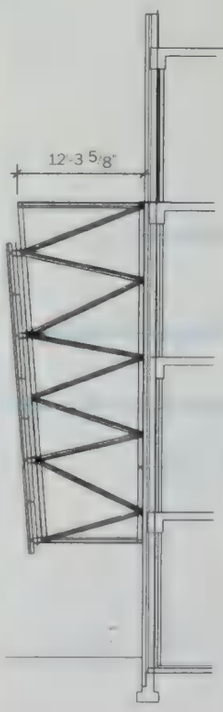
SECTION OF PROJECTION BOOTH



A late addition to the design, the sound and lighting equipment pavilion behind the stage, is a wood structure clad mostly in steel siding (above).

The amphitheater roof is corrugated fiberglass and aluminum on a steel frame supported by splayed steel columns (above, below, and opposite).

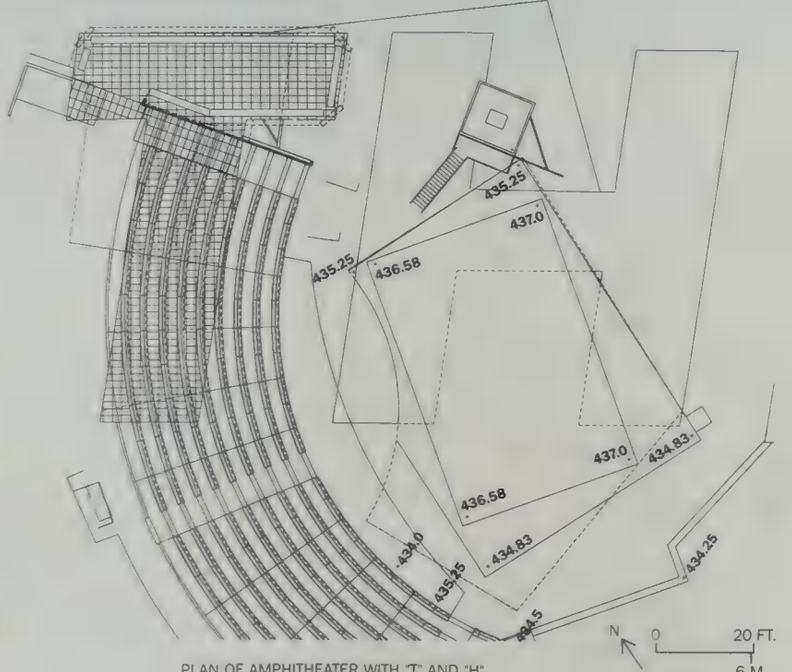




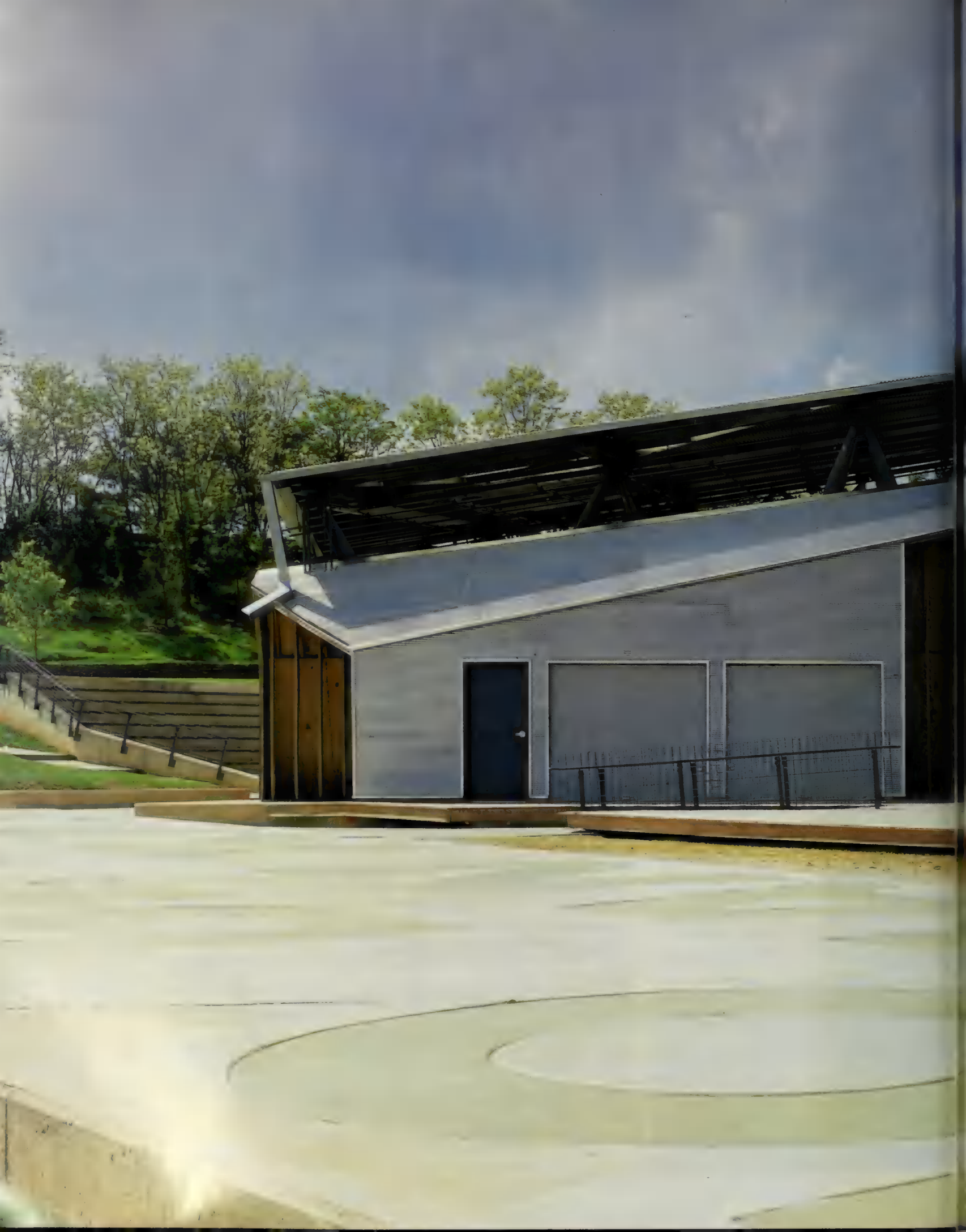
SECTION THROUGH MOVIE SCREEN

The movie screen is particle board on a steel frame, which is embedded into a museum wall. The location provides acoustic privacy from suburban neighborhoods to the north. The "T" and "H" of "this" in the phrase "Picture This" are set into the slope of the amphitheater and its roof (right).



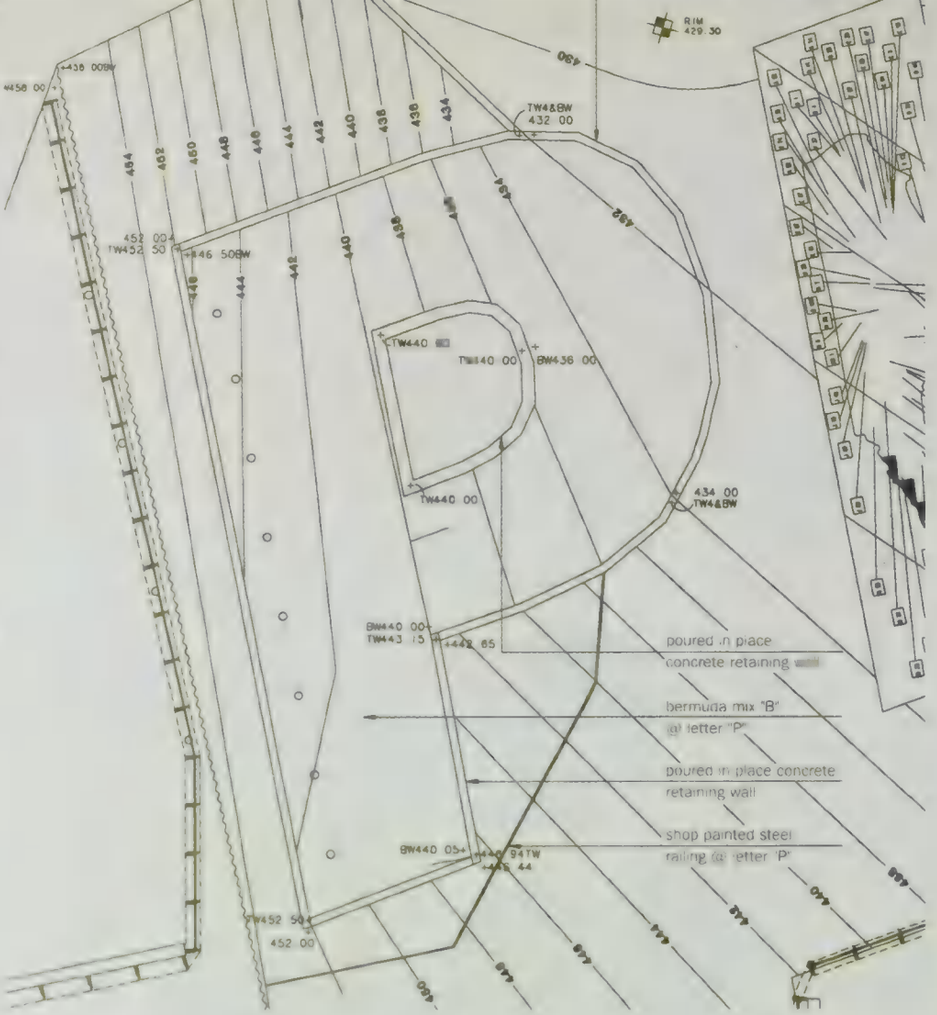


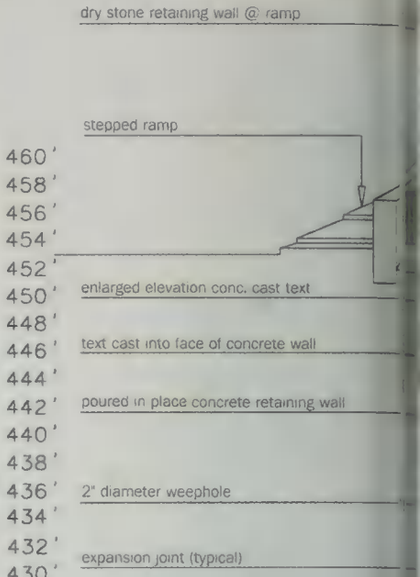
PLAN OF AMPHITHEATER WITH "T" AND "H"





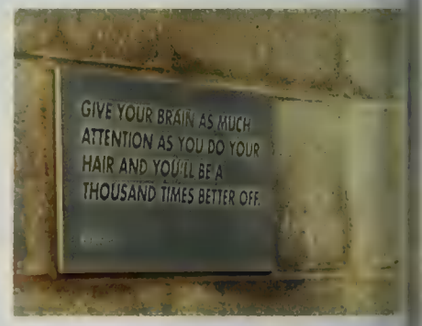
The "P" is an 83-ft-long, 1-ft-thick cast-in-place concrete retaining wall that rises to a maximum height of 12 ft. It is inscribed with such phrases as "Please read the writing on the wall," "Please please me," and "Please let empathy change the world." The letters had to be set backwards into the formwork, which could only be done once, so museum curators and bystanders joined the construction crew in a spell-check.





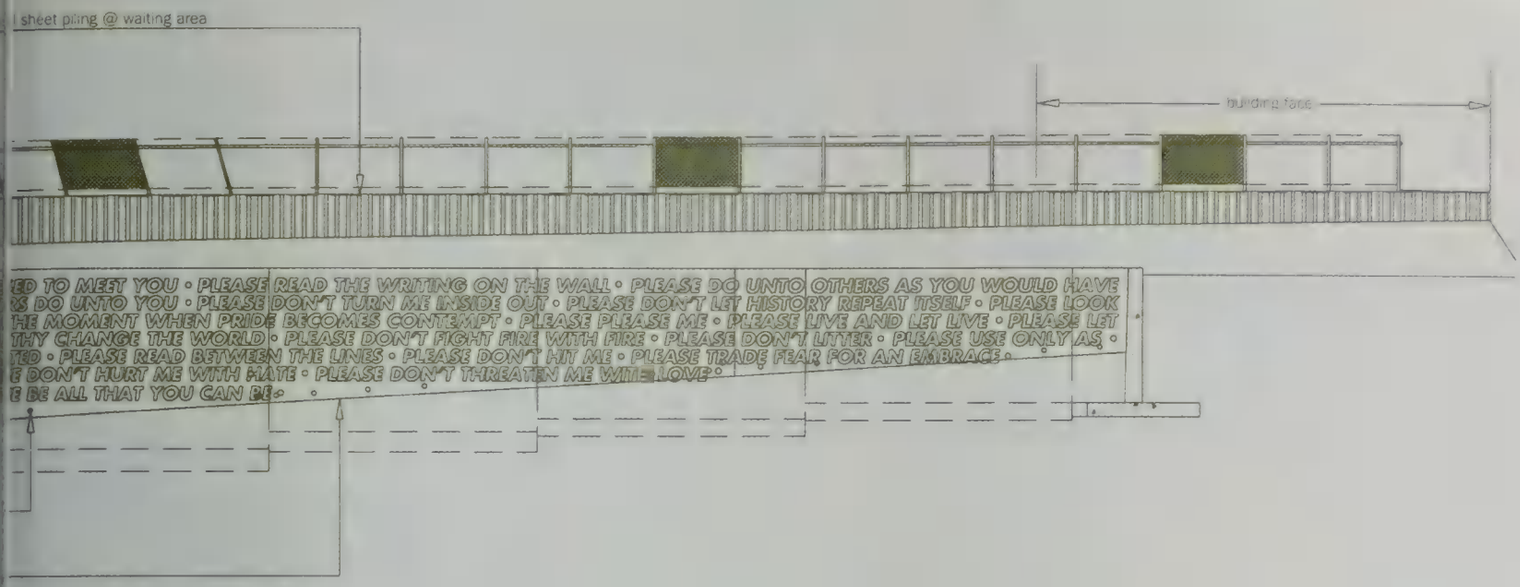








The "P" wall (top), a surprising Malcolm X quote on the "E" (middle), and a kid hops from plaque to plaque on "I" (bottom).



The "I" in "picture" is dotted with historical plaques, facsimiles of markers throughout the state (far right and opposite bottom and left). The sandy "C" is a play area for children and soft movie-watching seating. The asphalt "T" is a parking lane for equipment trucks.





concrete block walls of the letter "E," deal with some of North Carolina's most historically sensitive issues—tobacco, slavery, self-expression—all this in Senator Jesse Helms's home district. One plaque, attributed to Ralph Waldo Emerson, reads, "The believing we do something when we do nothing is the first illusion of tobacco." No attempt was made to "soften" such statements in a state were tobacco is still a principal industry—a pleasant surprise to Kruger, who has faced opposition in other public projects. Wheeler says that the text was executed in its unexpurgated form because of the balanced presentation of issues throughout the project, observing, "In virtually every case, there are two points of view."

Two points of view also characterize the centerpiece of the Smith-Miller and Hawkinson design, the amphitheater and outdoor cinema. The different site-line requirements of a movie theater and a dance/musical performance space made the architects' initial idea of a single, multipurpose performance space impossible on closer examination. The two separate areas—one with a covered stage and built-in seating, and one with a lawn for more casual gatherings—create an overlay of geometries that pivot at the lifeguard-tower-like projection booth. While the contours of the site were gently modified so that the path that circles the amphitheater meets handicap requirements, the booth posed an access problem. The Governor of North Carolina requested an exemption, which was approved. Perhaps the most poetic convergence of art, architecture, landscape, and pragmatics is the letter "I" in "this." It is a 21 1/2-ft-wide, 83-ft-long, 18-in.-high integrally colored concrete rendering of the state motto of North Carolina, "To be rather than to seem," and the handicap ramp runs through it. Jumping from one side of the motto to the other, children have integrated the ramp into a made-up game the designers didn't anticipate. As this team would say, and does so eloquently somewhere in the "P" wall, "Please read between the lines." ■

Manufacturers' Sources

Amphitheater structure: *North State Steel*

Corrugated fiberglass and aluminum roof: *Resolite, Div. United Dominion Co.*

Theatrical lighting: *Bitting Electric*

Sloped, sliding projection booth window: *Häfele America Co.*

Upward-acting bi-fold projection booth door: *Schweiss*

Galvanized corrugated steel cladding: *Copper Sales, Inc.*

Integral colored concrete: *Colors*

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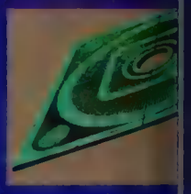
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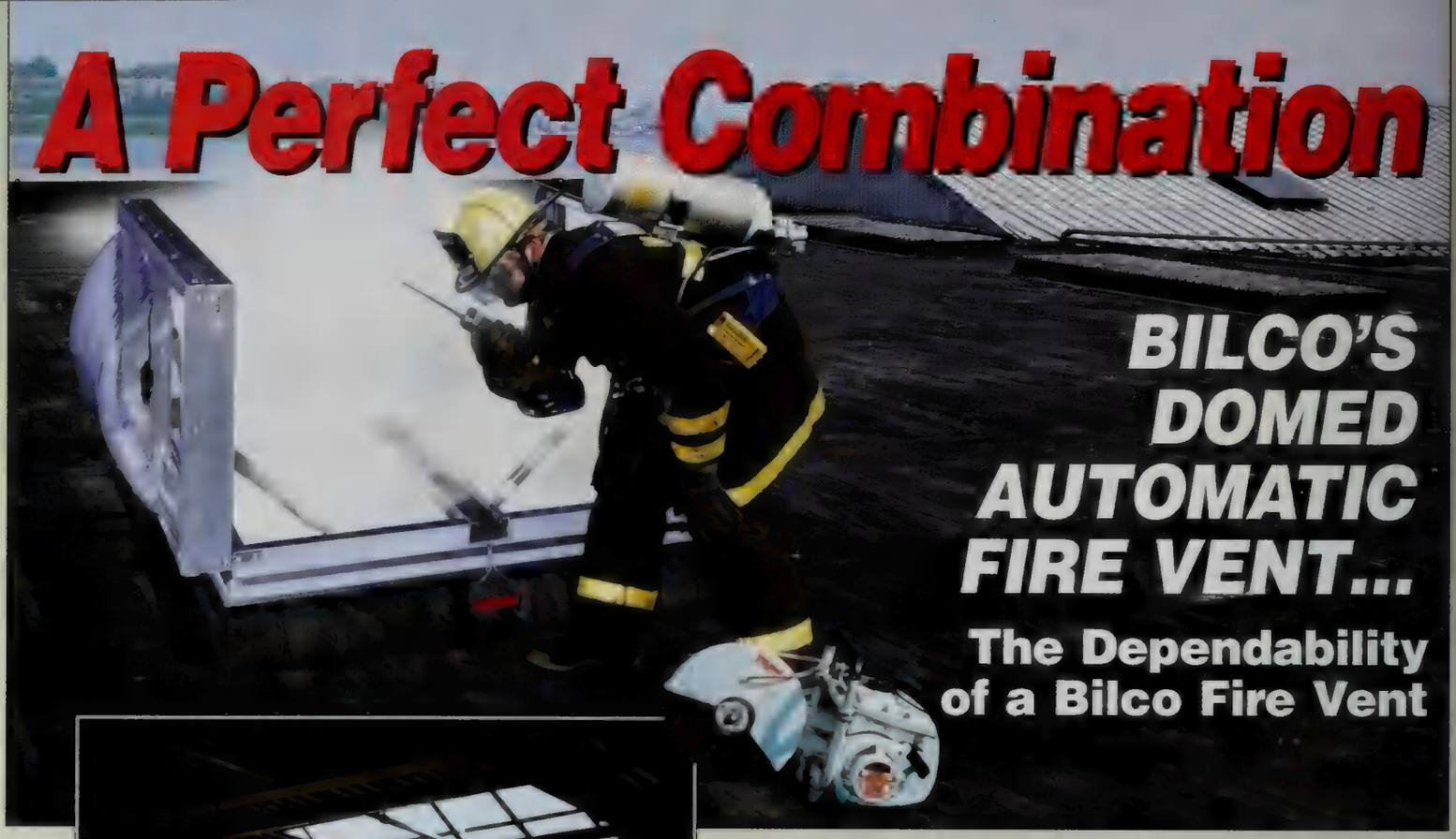
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by James S. Russell, AIA



1

Seattle, Washington

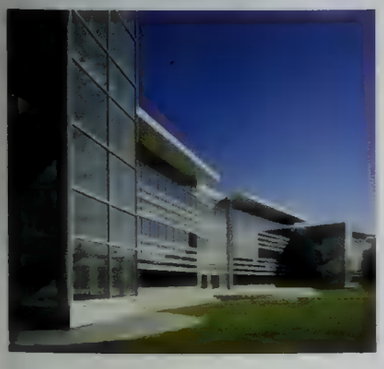
A 40,000-sq-ft office and bank branch building shows that an energy-conserving agenda can be consistent with an urbane expression and a high-quality workplace.



2

Essen, Germany

A 30-story tower is among the most ambitious recent attempts to minimize energy consumption while giving workers a high level of individual environmental control over their workspace.



3

Toledo, Ohio

A low-rise corporate headquarters at the edge of downtown responds to a corporation's restructured, more fluid working methods while offering garden, downtown, and river views.

The long drought in office building is over. But as Peter Slatin reports elsewhere in this issue, the consensus among real-estate analysts is that the new growth in office buildings will come from, as the *Wall Street Journal* reports, "a crop of boxy, nondescript buildings that are throwbacks to designs typical of the 1970's and early 1980's."

While such cookie-cutter "product" might suit businesses where least-cost-per-employee is the primary consideration, the way business is done has changed a great deal during the office downturn (indeed, has contributed to it), and many companies seek a better-fitting facility.

In this issue we offer a sampler of office buildings that address business' new realities. Many remain within the cost envelope dictated by speculative norms. Techniques pioneered in high-end corporate facilities, such as RWE, in Essen, Germany (page 144), are being widely adopted more quickly than could be anticipated less than two years ago when the building's cutting-edge innovations were first published [RECORD, October 1995, pages 72–73]. Indeed, interest in facilities that support restructured work has escalated rapidly, evidenced in the huge response to the *Business Week/Architectural Record* awards for designs that help businesses achieve bottom-line objectives. Companies have reduced layers of management and want managers to stay closer to the communication loop, for example, so corner offices—even private offices—are eliminated. (At the NW credit union, page 140, open-office areas share daylight and views; private offices are on the interior.) While many businesses outsource more tasks, Swiss Bank is bringing its traders together—all on one vast 50,000-sq-ft daylighted floor (page 138). Workers with white and blue collars may even share the same space [RECORD, December 1996, pages 23–49]. Owens Corning (page 152), like many other companies, recognizes that interaction takes place in both formal and informal meeting places, and have given such areas architectural focus.

Above all, companies need flexibility. The time it takes most companies to move office walls is the time in which SEI (page 139) can assemble a team, get a task done, and disband. It regards this speed as a key competitive advantage. Accommodating fast-changing technology also remains important, and, as Stewart Brand has noted in *How Buildings Learn*, the daylighted, high-ceilinged, rectangular loft building—with its long history—may be as flexible a paradigm as any. Witness Pennsylvania's SEI, the long, narrow profile of which differs little from mill buildings found for more than 200 years in the same area.

Project: *Swiss Bank*
Stamford, Connecticut
Architect: *Skidmore, Owings & Merrill*

In theory, banks shouldn't need trading floors anymore. Financial-trading data and news, instantly updated, is available even to individual investors sitting by their modem-connected laptops.

Though many financial businesses are scattering facilities, Swiss Bank is bucking the trend. Not only has it concluded that it is important to keep traders together in a single room (where even tiny movements in far-flung world markets can be tracked and reacted to), it is making one of the biggest trading floors ever—50,000 sq ft—under construction in a new campus in Stamford, Conn. (right).

Swiss Bank's is, however, a very high-tech trading floor, where each of 600 workstations (below) is equipped with air handling to remove the huge amounts of heat generated from computer monitors (some traders will have two). Tensile bottom chords of the room's roof-support system will be exposed. A baffle system distributes glare-free daylight and electric light and helps lower noise levels (far right). SOM partner-in-charge is John Winkler.



Swiss Bank's 132-by-210-ft trading floor is in the curved-roof structure at the center of the rendering above. Three towers surrounding it are to be built in phases, and include parking and additional trading-floor area. The office building will have 40-ft clear spans in order to accommodate a variety of work-group types and adapt to future change.





Project: *SEI*
Oaks, Pennsylvania
Architect: *Meyer, Scherer & Rockcastle*
SEI, a financial-services company that does information support and asset management for banks and private clients, found it could serve clients better if the projects it took on could be turned around more quickly. Since these projects often require intense collaborative effort, the company decided to build a new facility to make teamwork easier. It brought in Minneapolis-based Meyer, Scherer & Rockcastle, who developed four similarly laid-out loft-like buildings in suburban Philadelphia (middle photo).

To form project teams, users simply push their wheeled desks (a custom alteration of a Vitra model) into whatever arrangement they find suitable. They remain connected to power and vital financial data through specially designed umbilicals (office view, top). High ceilings, ample interior and garden break areas, indirect lighting, and daylight from the narrow floorplate make up for the loss of private offices.





Though built to suburban cost norms, the floorplate of SEI is much narrower than that of standard buildings, allowing for a considerably brighter interior.

Project: *EMC Insurance Companies*
Des Moines, Iowa
Architect: *Brooks Borg Skiles*
Because of high internal heat loads, conventional wisdom is that well-insulated office buildings are often not cost-effective. This insurance company looked to a longer performance term and asked for superior energy performance. The firm adapted a Pohl wall system: Metal cladding is backed by 40-lb-density mineral-fiber insulation, then an air cavity, rainscreen system, and precast-concrete backup. The system does not require gaskets or sealants. A Visionwall window system suspends two films to create three air spaces between its outer glass lights, gaining the glazing an insulation rating of R8. The building uses an ice-storage system to lower power costs and low-temperature air to reduce duct volume and size. It has just been completed (images, however, are model shots).





1 NW Federal Credit Union Seattle, Washington

INTEGRAL TO A DAYLIGHTING SCHEME, A SMALL BUILDING'S EXPRESSIVE ROOF FORMS ALSO MAKE AN URBAN PLACE AT CITY'S EDGE.

by Trevor Boddy

Project: *NW Federal Credit Union Seattle, Washington*
Owner: *NW Federal*
Architect: *The Miller/Hull Partnership—David E. Miller, partner-in-charge; Sian Roberts, Scott Wolf, Aiden Stretch, project architects; Steve Southerland, Holden Withington, project managers*
Engineers: *H.K. Kim Engineering—H.K. Kim (structural); SvR Design Co.—John Rundall (civil); Wood/Harbinger—Bob Axley, Dave Porter (mechanical); Sparling—Joe Virnig (electrical); Geo Engineers—Larry Peterson (soils)*
Consultants: *Paladino Consulting—Tom Paladino (sustainable design); Jongetan/Gerrard/McNeal—Art Seidel (landscape); Genette Voynow—Sidney Genette (lighting); Greenbusch Group—Julie Weibusch (acoustical); Mark Smith (branch bank construction)*
General Contractor: *Lease, Crutcher, Lewis—Jim Burk*

Though it is merely a bank branch and office building, the NW Federal Credit Union, by Seattle's Miller/Hull Partnership, has a dignity and presence unpredicted by its 40,000-sq-ft program, its modest budget, or its site. NW is a credit union for federal-government employees in the Puget Sound area, and most of its nine other branches are without architectural identity, being invisibly accommodated in sprawling federal buildings or compounds. The north Seattle site was chosen because of the ever-northward growth of the metro area, and the need for NW to create a headquarters identity independent of specific federal-government workplaces.

While proximity to the adjacent Northgate Mall, expanding employment centers, and easy freeway access were all factors, it was the natural splendor of a site edged with forest, ravine, and carefully trimmed cemetery that brought NW here. Yet the site also faces a large collection of bulky big boxes, instantly forgettable institutional constructions and professional buildings, not to mention a bursting menu of fast food franchises, that spill indiscriminately across the buzzing barrier of I-5, Seattle's north-south spine.

Miller/Hull was selected as designer largely because of its established expertise in green architecture—not just in terms of energy-efficient, minimum-impact construction, but, broadly considered, a healthy and stimulating work environment. According to key client representative and NW Vice President of Finance John Zmolek, "Our board was committed to demonstrating green building principles."



Making the most of views and microclimate orientation were the key elements in architectural-design choices made by partner David Miller. Nearly every workspace boasts a view of either grassy cemetery, densely treed ravine, or downtown Seattle's distant skyline.

With its aggressive roof form and broadly extended porch, the "head" of the building's massing is cranked southeast from the cardinal street grid to face a point midway between the natural landmark of Mount Rainier and the urban reality of the much-nearer Northgate Mall. It's a way of acknowledging both, say the architects. The splayed geometries and heroic detailing of the sunshades and cantilevered roof are reserved for the urban faces to the south and east. Similarly, the angled bracket for the porch is echoed at finer scale in the smaller, angled tubular-steel sections which support the sunscreens. This strategy—what Miller calls "a box with attachments"—results in a dialogue of major with minor order, "a closet Classicism," he calls it, evident in such other Miller/Hull projects as Olympic College Shelton [RECORD, November 1996, pages 90-94].

The scaled-up porch and brises soleil that dominate the east and south elevations are not only a

Trevor Boddy is a Vancouver, B.C.-based architectural historian and critic.

The scaled-up roof overhangs and brises soleil allow extensive areas of glass, which draw in weak light on the frequently overcast days. Some areas can be naturally ventilated.

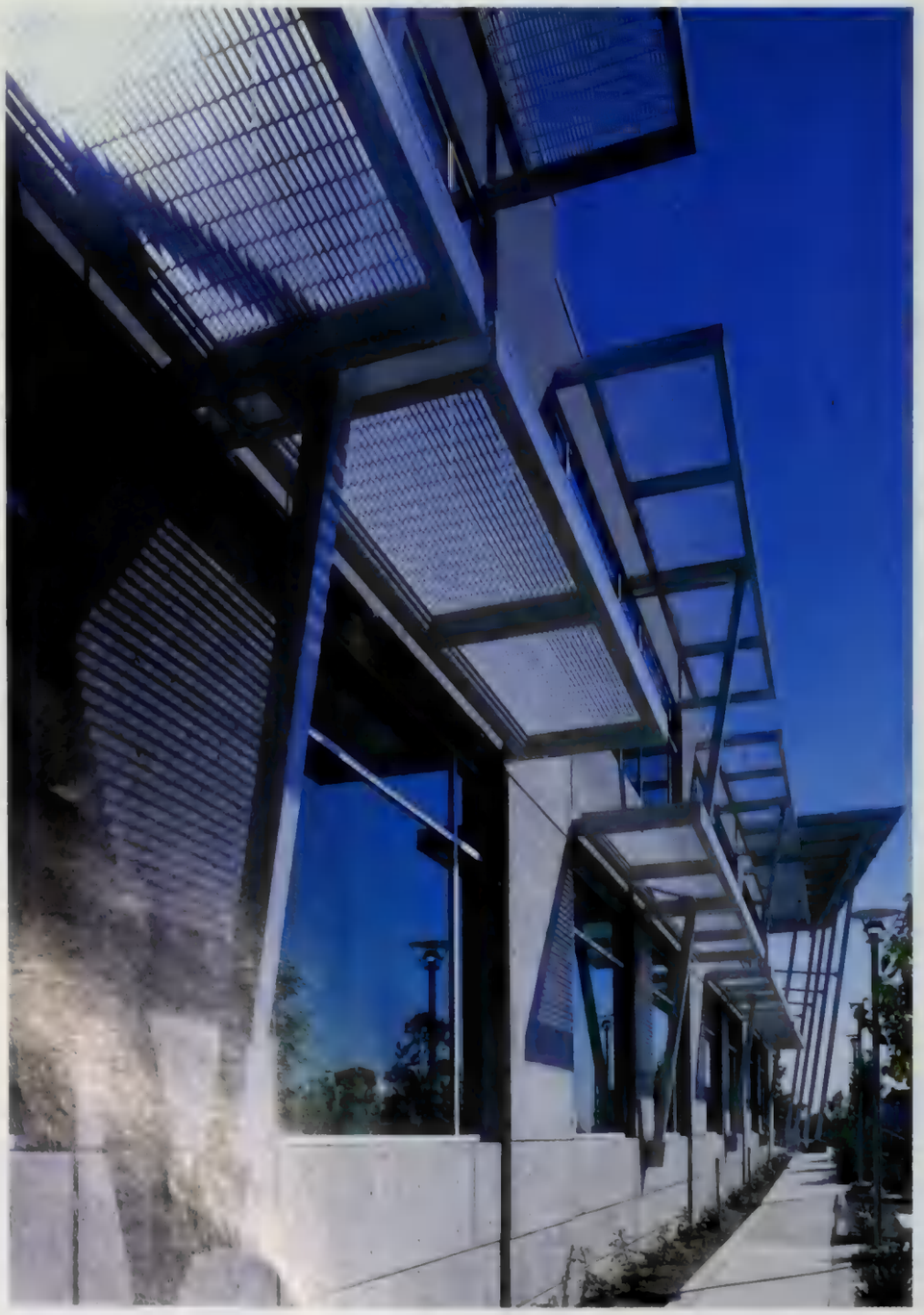


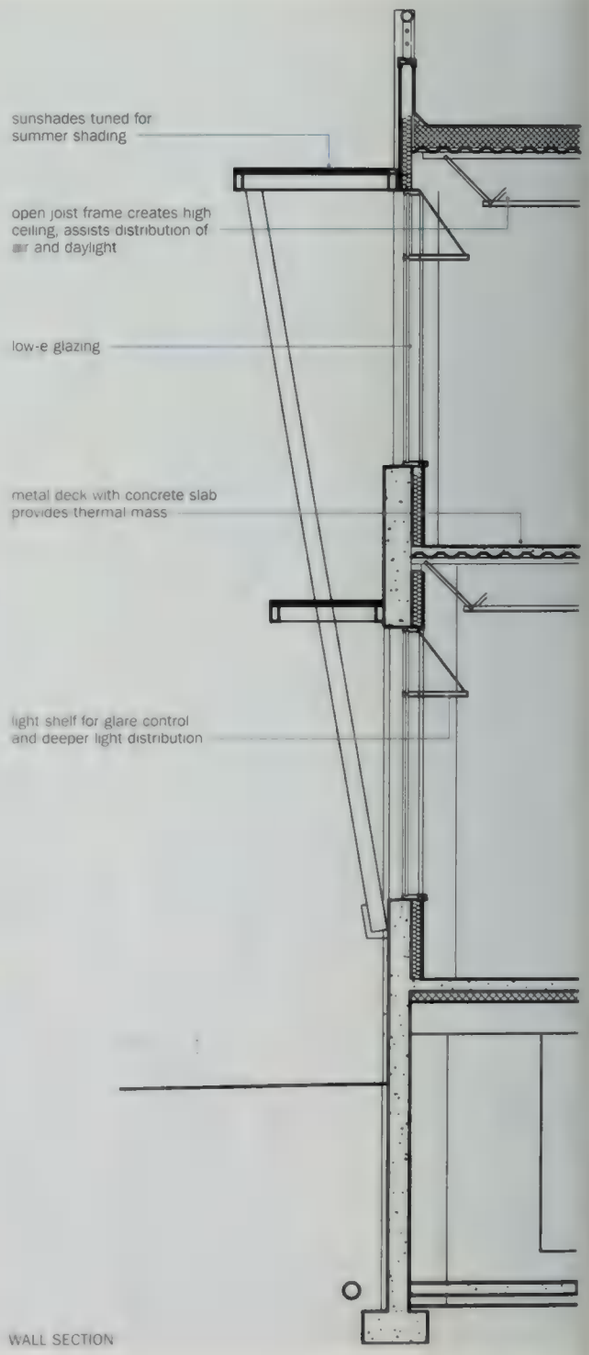
NORTH-SOUTH SECTION

The splayed geometries of the sunshades and cantilevered roof are reserved for the urban faces to the south and east.

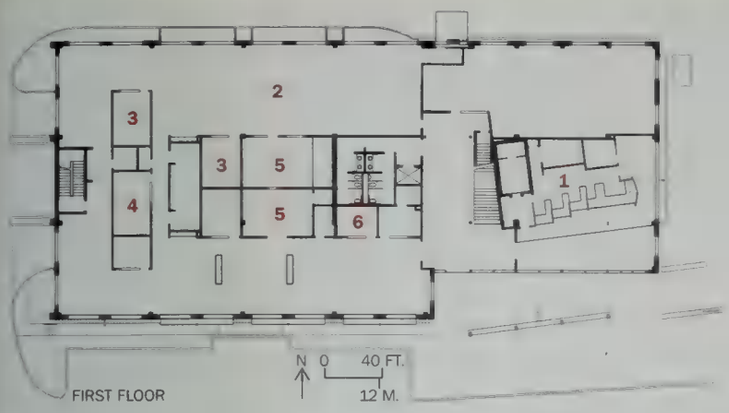


The small, ground-floor credit union branch faces the intersection and mall beyond, with a staff lunchroom and training rooms stacked above (left). Metal supports frame sunscreens into poured-concrete walls (bottom). Offices are arranged in two floors over the required 33 interior parking slots. Nearly every workspace boasts ■ view of either grassy cemetery or downtown skyline.





WALL SECTION

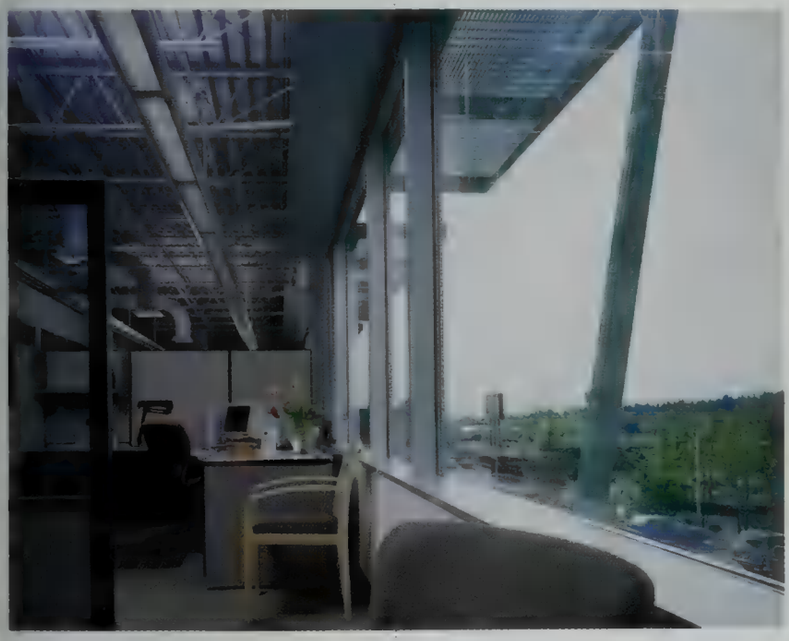


FIRST FLOOR



SECOND FLOOR

1. *Bank branch*
2. *Open office*
3. *Private office*
4. *Meeting*
5. *Workroom*
6. *Interview*
7. *Tenant space*
8. *Computer*
9. *Check processing*
10. *Project room*
11. *NWFCU office*
12. *Reception*



visual marriage of attitudes toward the natural and the urban environment. In addition to being a crucial part of the daylighting strategy for the building (about which more will be found below), they reduce summer solar gain (the third floor is not even air conditioned) and glare, while inviting in the low, southern light of winter. These gestures met with initial resistance from the client and Kathleen Scott, the project manager appointed to represent the client's interests. But the details survived the rigors of cost accounting. The elevations facing the cemetery and ravine are orthogonal and severe. The lack of shading here recognizes the need to draw in northern light on the many glowering raincoast days and the screening by trees of low, western, afternoon light.

With only a small banking space off the lobby, one drive-thru teller on the north side, and a single cash machine, this is principally an office building. While the main offices of NW are up the stair, 10,000 sq ft of currently leased commercial space at ground floor is available for further growth. Office spaces for NW are open and airy, with a small number of private offices set along the service core at the center of the plan. This reverses the conventional office-building layout, but is readily accepted by credit-union executives because of the quality and quantity of their borrowed natural light and views. Steel joists, lighting fixtures, and mechanical runs are largely exposed, both to cut costs and as part of the daylighting strategy.

Realizing that NW's space needs at their required per-square-foot budget could only be achieved by avoiding fire-resistive enclosure of the steel floor framing, Miller/Hull took careful advantage of code provisions to lay out a building as large as possible without triggering these significant extra costs.

The daylighting scheme was tested and revised through design development by Tom Paladino, the sustainability consultant. The external horizontal sunshades made of steel grating are supplemented inside the glass line by horizontal light shelves which further reduce glare as well as soften and extend interior distribution of natural light. These design features permit interior direct and indirect fluorescent and task lighting to average only 0.85 watt per sq ft (compared to many conventional structures that average well over 1 watt per sq ft), and many of these are set on photo-sensor lighting controls for automatic dimming when daylighting is sufficient. The design was awarded a special citation by the Bonneville Power Administration. Operable windows permit natural ventilation in third-floor, training and board rooms, and in the lobby.

The hvac system has a night flushing cycle that draws out daytime heat accumulated by the concrete-slab floors, in the process also improving indoor-air quality by diluting off-gassed and day-to-day pollutants. All of this meant energy loads could be designed 30 percent below already-strict Washington State standards. Building materials, such as steel, insulation, and fly ash in the concrete, were also selected for their recycled content.

Even with such strictures, NW's interiors are hardly austere. The most striking area is the lobby. Dominated by the white-painted members of the steel framing, the floor is tiled in English slate and the stair is trimmed in diagonally set Canadian maple.

NW Federal Credit Union is evidence of a mainstreaming of green building: past the era of pop-on gizmology to full integration. Also, NW isn't gold-plated; it was built within mid-level construction norms and improves upon widely accepted design and comfort criteria. ■

Manufacturers' sources
Built-up roofing: *Johns Manville Corp.*
Window-wall system: *Efco*
Hardware: *Adams-Rite; Corbin*
Flooring: *DLW Linoleum*
Carpet: *Prince Street Technology*
Lighting: *Lite Control; Elliptipar; Lampas; Bega. Lutron; Gl[illegible]*
Office furniture: *Haworth*

2 RWE AG Hochhaus Essen, Germany

RWE IS THE FIRST OF AN AMBITIOUS CROP OF TOWERS THAT SET NEW STANDARDS FOR ENERGY CONSERVATION AND WORKER COMFORT.

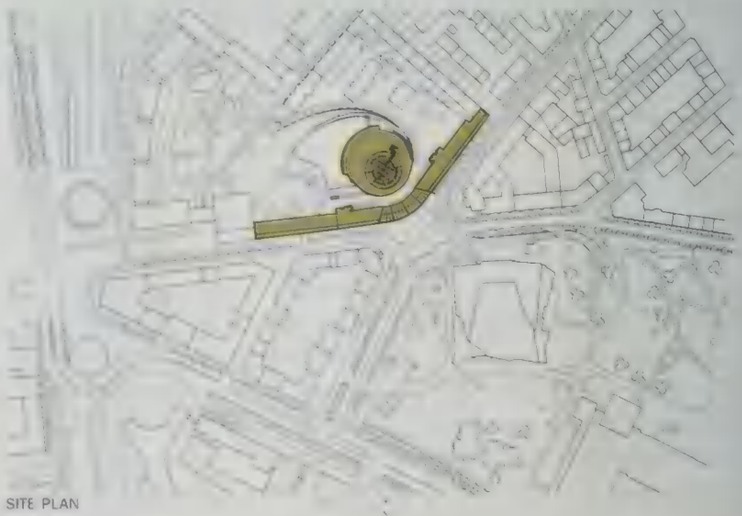
by Mary Pepchinski

Project: *RWE AG Hochhaus Essen, Germany*
Owner: *HOCHTIEF AG*
Architect: *Ingenhoven, Overdiek, Kahlen & Partner—Christoph Ingenhoven, Achim Nagel, Klaus Frankenheim, Klaus J. Osterburg, Martin Slawik, Elisabeth Viera, Peter-Jan van Ouwerkerk, Imre Halmai, Claudia de Bruyn, Jan Dvorak, Norbert Siepmann, Regina Wuff, Martin Röhrig, project team*
Engineers: *Buro Happold, HOCHTIEF AG (structural); HL-Technik (mechanical)*
Consultants: *Weber Klein Maas Meerbusch (landscape); HL-Technik, Lichtplanung (lighting); Trümper + Overath, Bergisch Gladbach (acoustical); Dr. Klingsch (fire protection)*
Contractor: *HOCHTIEF AG*

Compared to the United States, tall buildings are still an anomaly in Germany. When it is announced that one or more are to be built, critics typically decry what they view as an "American" type: one that squanders energy and resources and offers a poor-quality workplace. It is not surprising, then, that architects here have finally responded to these charges: a number of midrise and highrise office towers, which integrate new energy-saving and environmentally oriented technologies, are currently in construction.

Among these are Foster & Partners' just completed Commerzbank in Frankfurt; the GSW headquarters in Berlin, designed by Sauerbruch + Hutton [RECORD, October 1995, pages 80–81]; the Debis Building C1, also in Berlin, by Renzo Piano Building Workshop; and the Stadttor (by Petzinka Pink and Partner; Victoria Versicherung, Hentrich-Petschnigg and Partner) in Düsseldorf. One of the most sophisticated, the RWE AG Hochhaus, designed by Ingenhoven, Overdiek, Kahlen & Partner, was completed before the rest, in December 1996.





SITE PLAN

Symbol of a revitalized city

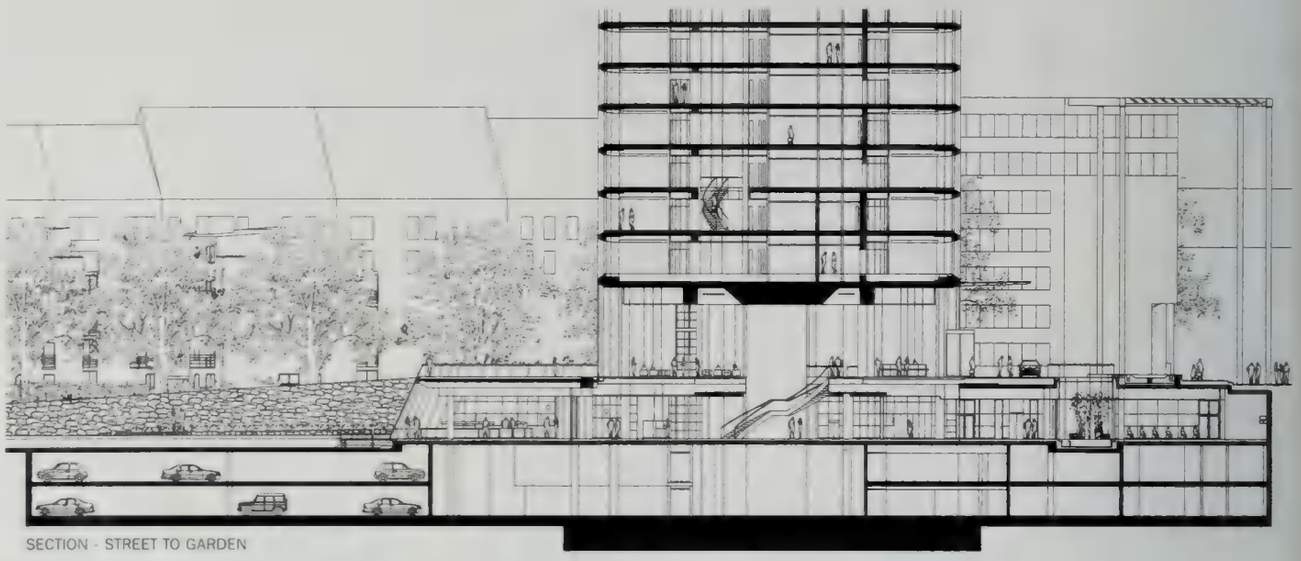
RWE is a corporate headquarters located in Essen, across from a theater designed by Alvar Aalto (foreground, opposite). It has become a centerpiece of this city's revitalizing downtown. Essen itself is a major regional city of the Ruhr industrial belt, which is rapidly transforming into a center of white-collar services. Until recently, however, a drive through downtown Essen left the impression that there was no "there" there. Heavily damaged in World War II, its uninspired reconstruction, which included slicing a heavily used regional *(text continues)*

Mary Pepchinski is an architect, teacher, and writer based in Berlin.

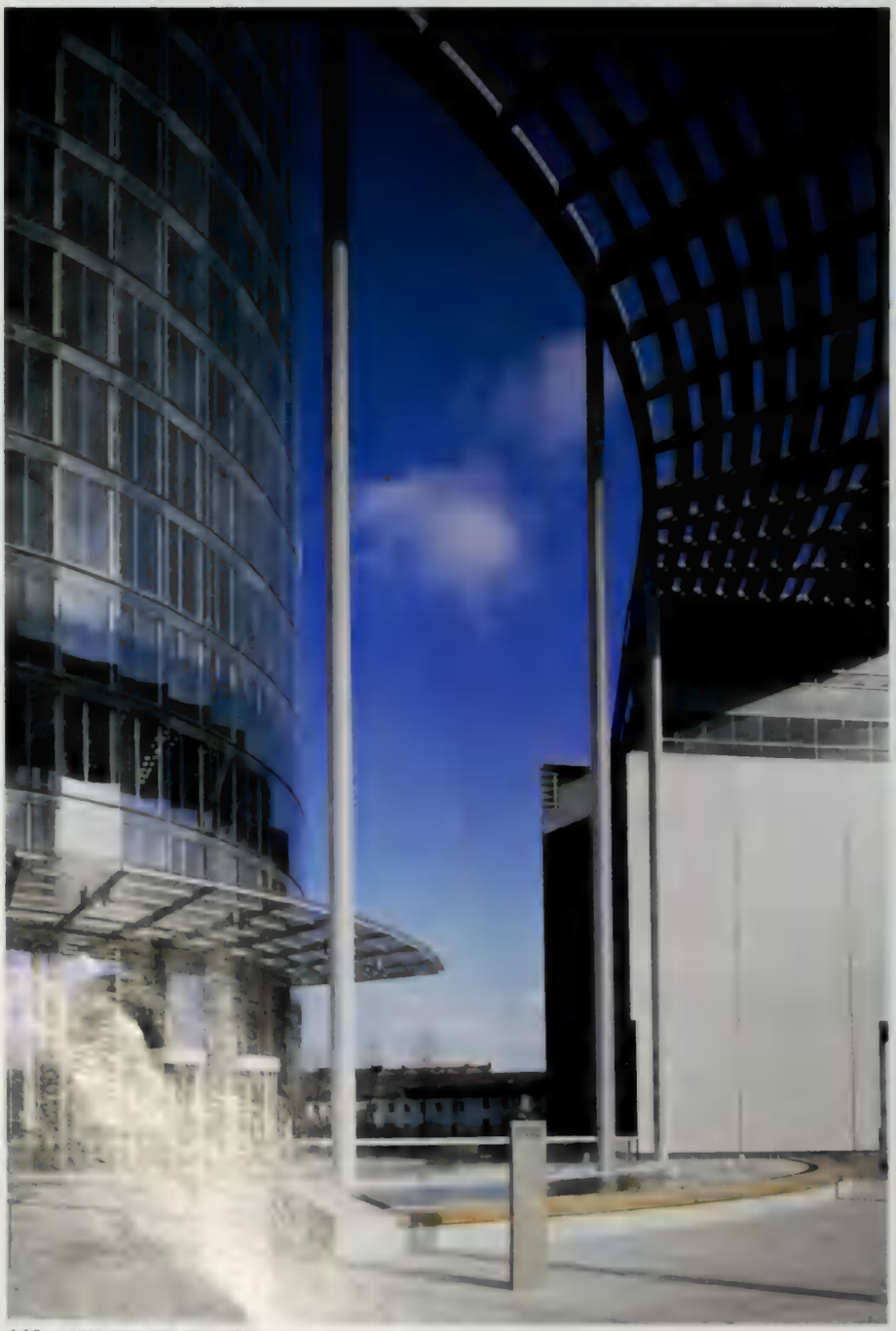


A landmark in its low-rise city, RWE is the first realized project in an ambitious downtown revitalization plan.

The lower-level cafeteria opens to a garden within an existing low-rise city block. It covers parking.



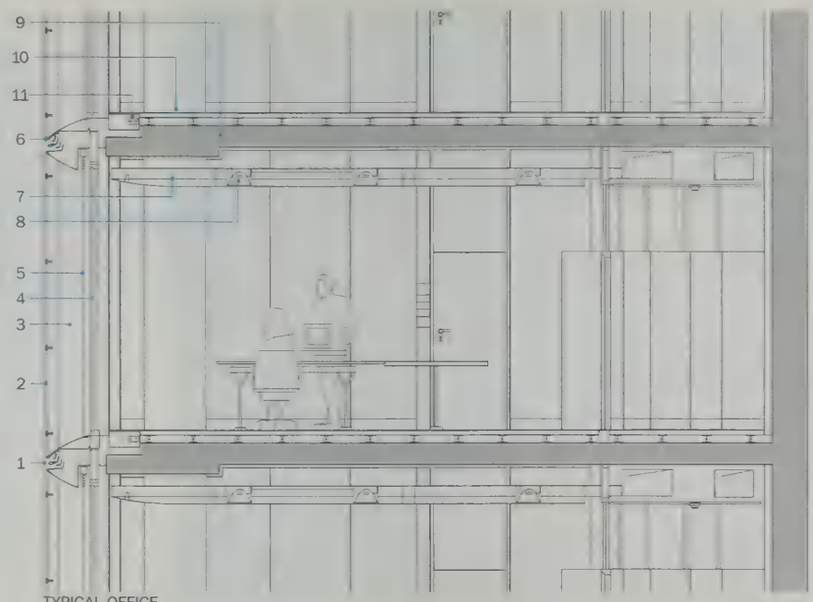
SECTION - STREET TO GARDEN





A trellis over the entrance (left) holds an array of photovoltaic cells. At a rooftop terrace, a glazed wall screens landscaping against the wind (above).





TYPICAL OFFICE

1. *Fresh-air intake*
2. *Single-pane clear glass*
3. *20-in.-wide buffer zone*
4. *Operable (sliding) insulating-glass unit*
5. *Internal blind*
6. *Fresh-air exhaust*
7. *Integral radiant cooling/lighting unit*
8. *Adjustable down-light*
9. *Exposed "thermal" slab*
10. *Raised access floor*
11. *Supplementary heating*



Horizontal slots visible in the curtain wall are part of the ventilation scheme.



The external elevator core (left) offers expansive (and for some, giddy) city views. Lacking a core of elevator shafts, the lobby (below) offers a clear view through to the garden.

highway right through the middle of town, had made the city a cold and unappealing place.

Roughly a decade ago, sorely needed civic improvements began to be realized, which included the completion of the long-delayed Aalto theater. In 1991, an urban design competition was won by the Düsseldorf-based architects Ingenhoven, Overdiek & Partner (now Ingenhoven, Overdiek, Kahlen & Partner), who proposed a "green" connection between the city park surrounding the Aalto theater and the center city and main train station only a few blocks away (site plan, page 144).

The plan includes a cluster of office towers. (Though not shown in photos, the city now has a few high-rises.) The architects argued that this was an environmentally appropriate solution because the open spaces would enhance the urban environment, while the towers would concentrate development in the existing downtown, close to well-traveled mass transportation, thereby keeping sprawl from erupting [illegible] periphery.

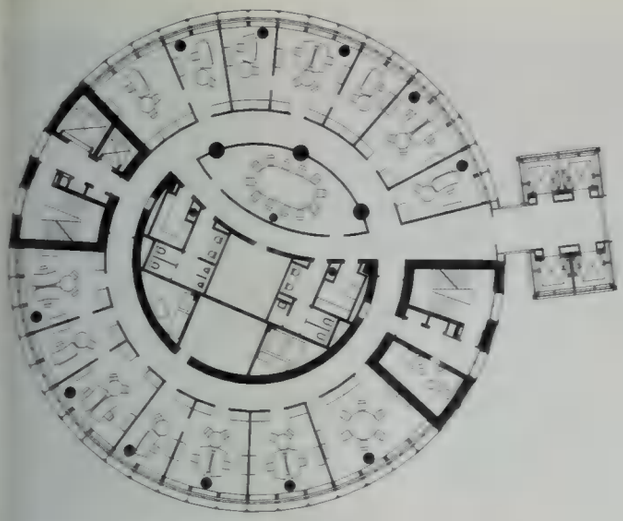
[illegible] Commerzbank's largest [illegible] of the [illegible] plan [illegible] agreed [illegible] to augment the [illegible] scraper of unusual [illegible] ambition. The design attempts to move conservation and sustainability to a new level without compromising the access to natural ventilation and daylight that German workers regard as a near-birthright.

Integrated design

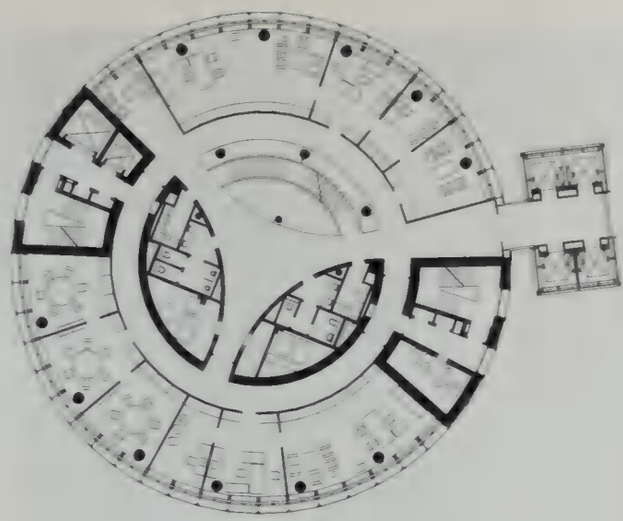
To realize the project required a total systems approach. The 125-ft-dia. floors of the 30-story reinforced-concrete structure are small by American standards but allow typical floors to contain naturally lit and ventilated offices along the periphery. Indeed, the form was chosen for its optimal relation of surface to volume. (The windowless cubicle landscapes of American office buildings are virtually outlawed in Germany.) The elevator core is attached to the cylinder, while meeting rooms, fire stairs, and atriumlike convenience stairwells link floors at the center.

Lower levels contain entry and public areas; a mechanical floor occurs at two thirds of the cylinder's height. An elevated ring tops the tower and supports the window-washing apparatus, while an antenna is attached to the elevator block's roof.



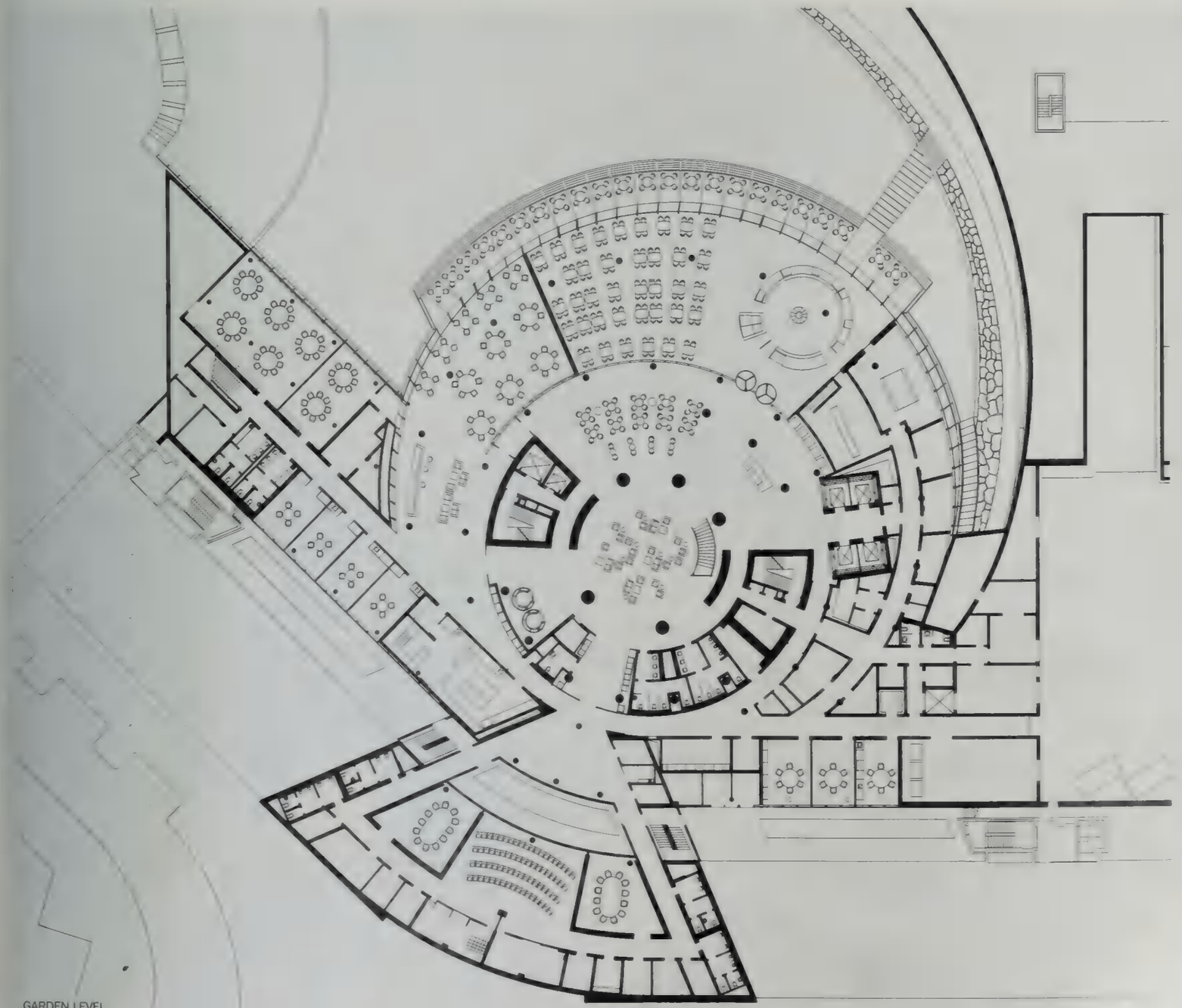


TYPICAL OFFICE FLOOR



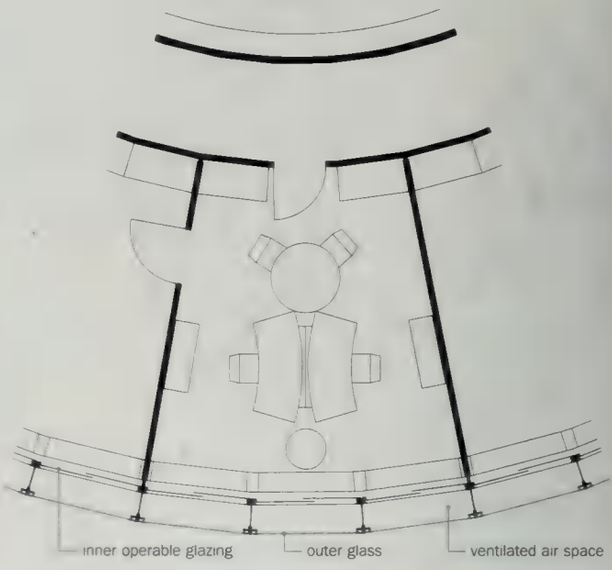
TYPICAL FLOOR WITH MEETING ROOMS

Locating the glazed elevators externally frees the core for meeting rooms and communicating stairs (typical tower plans, left). Additional meeting and dining rooms face a garden one level below the entry (bottom).



GARDEN LEVEL




inner operable glazing
outer glass
ventilated air space





Natural light and ventilation are accessible from nearly every office (opposite top). Communicating stairs on typical floors borrow light from office clerestories (left). Another curving stair (opposite bottom) brings visitors from lobby to meeting and dining rooms one floor below.

A "ventilated" wall

Such a high ratio of exterior wall to internal space meant that the curtain wall had to be extremely efficient to counter winter heat loss and summer solar-heat gain. Added to this, the desire to permit natural ventilation and minimize use of electric lighting drove the design to a sophisticated double-glass facade.

From outside to inside, the system is composed of, first, exterior safety glazing, fixed by bolt-through fittings; a 50-cm-(20-in.) wide airspace, separating it from the interior glazing layer, which is composed of fixed and movable floor-to-ceiling, double-glazed panels (page 147).

A horizontal metal extrusion at each floor slab was formed into what the architects call a "fish-mouth" louver, which can be opened to admit fresh air at the bottom of the gap between the glazing layers or to exhaust air from the top of the airspace of the floor below. (To avoid short-circuiting, intake or exhaust is open, not both.)

The insulating-glass interior light slides open 15 cm (about 6 in.) wide, giving users control over how much ventilation is admitted. This double-wall system, besides offering high insulating value (venting or collecting accumulated solar heat as needed), overcomes the shortcomings of operable highrise windows by protecting against noise and controlling dust-laden gusts. Perforated aluminum blinds located in the airspace between the glazed inner and outer wall protect against sun and glare.

Because of the wall's insulating properties and its high admittance of daylight—reducing the need for electric light—the architects were able to further minimize cooling loads (and thereby equipment and capacity) by exploiting the thermal lag of the ceiling's exposed concrete slab. It absorbs excess heat during the day and radiates it at night, assisted by perforated holes in the ceiling panels. Mechanical cooling is provided by cold-water radiators integrated into the ceiling in a strip that also contains acoustical absorption, sprinkler heads, loudspeakers, and fixtures for ambient and adjustable task lighting (opposite top).

Users control environment

While miserly with energy, the design actually gives individuals a high level of control over their environment. Using a keypad wired next to the door jamb, users can regulate an office's temperature, lighting, power-operated shades, and external ventilation louvers.

What is this brave new office environment like? Though the skin is very uniform, and the outer clear layer of glass is very transparent, it does reflect changing atmospheric conditions. During my visit on an overcast day, the glass facade appeared gray and muddy. But since the inner layer reflects slightly too, it makes the outer layer look like a diaphanous veil, giving the wall an incredible visual depth.

On a typical office floor, occupants were using the controls to set rooms to different temperatures. The movable facade panels were easily unlocked and slid open with a crank. When opened, however, wind noise was extremely loud. The natural-ventilation scheme appeared to deliver air that was both cool and fresh. The offices were very bright thanks to the floor-to-ceiling glazing, which also provided spectacular views over the city. Light pours into a boardroom and upper-level communicating stairs from rooftop skylights. But this is not a building for the agoraphobic.

The modest size of the floorplate (about one-third the size of typical American "developer specials") means that this 30-story tower is not the hulking presence that skyscrapers often are.

An array of photovoltaic power-generating cells intended to demonstrate the potential of the technology was reduced from the ambitions of the original design; they are mounted only on the trellis above the entrance. At any rate, the efficiency of today's cells and the cloudy climate made the potential power generated small. But such demonstration projects do help commercialize the technology.

Much of the detailing, such as the double facade, required extensive research and testing as well as special permissions from local authorities before construction. According to the design team's analysis, RWE will consume 22 percent less energy than a conventional tower, which already must meet strict criteria. Indeed, the architects argue that the additional costs of the facade will have a quick payback. But independent testing has not yet been done, nor do we know over the long term whether such a complex facade can be readily maintained. Considering that back-up cooling and ventilation systems were also installed, the "American" type has not yet been surpassed. In Essen, at least, they were willing to try. ■

Manufacturers' sources

Curtain walls, skylights: *Josef Gartner & Sons*
Glass: *Vegla*
Interior finishes and acoustical ceilings: *Schmid*
Elevators: *Thyssen*
Lighting and controls: *Siemens*
Technical equipment: *Rudolf Otto Meyer*
Furnishings: *Vitra, Cassina, Tecno, Knoll*

3 Owens Corning Toledo, Ohio

A COMPANY CHANGES ITS MANAGEMENT STYLE AND GOES HORIZONTAL WITH ITS NEW HEADQUARTERS.

by Cheryl Kent

Project: *Owens Corning World Headquarters, Toledo, Ohio*
Architect: *Cesar Pelli & Associates—Cesar Pelli, FAIA, design principal; Fred W. Clarke, FAIA, project principal; Mark R. Shoemaker, AIA, design team leader; Phillip G. Bernstein, AIA, project manager; Mihaly Turbucz, David Chen, Axel Zemborain, Julann Meyers, David Coon, Anne Haynes, Jane Twombly, Karen Koenig, William Traill, designers*
Architect of record: *Kendall/Heaton Associates*
Interior designers: *Harley Ellington Design; Steelcase, Inc.*
Engineers: *CBM Engineers (structural); Cosentini Associates (mechanical/electrical/plumbing); Avca Corp. (civil); Epic USA (telecommunications)*
Landscape architect: *Balmori Associates*
Consultants: *Cosentini (lighting); Cerami & Associates (acoustics); Thomas Patti (art glass); Acentech (audio/visual); Bowser Morner (geotechnical); Douglas Gallagher (signage and graphics)*
General contractor: *The Lathrop Company*

The Owens Corning headquarters in Toledo, Ohio, is management style made manifest. This three-story, 400,000-sq-ft building on the Maumee River—its massing recalling suburban office campuses of recent decades—is a fairly literal interpretation of the flattened hierarchy and teamwork orientation that Owens Corning, like so many companies today, is adopting.

For design architect Cesar Pelli & Associates, a firm more accustomed to skyscrapers, the job presented challenges: how to support Owens Corning's intended internal changes and convincingly insert the resulting large, low building into a downtown setting.

Toledo, which had lost many jobs in recent years, was eager to keep Owens Corning and worked to upgrade the riverfront site and connect it to existing city streets. Pelli says the building feels like "[It is] in the city, but outside the city, as though it were in a ship that anchored downtown."

Before moving into the new building, Owens Corning had its headquarters in a highrise nearby. Jim Eckert, the company's project director for the new facility, explains that the old building's small (10,000-sq-ft) floors and outdated wiring were creating problems. "Our thinking was bumping up against the walls of that building," says Eckert.

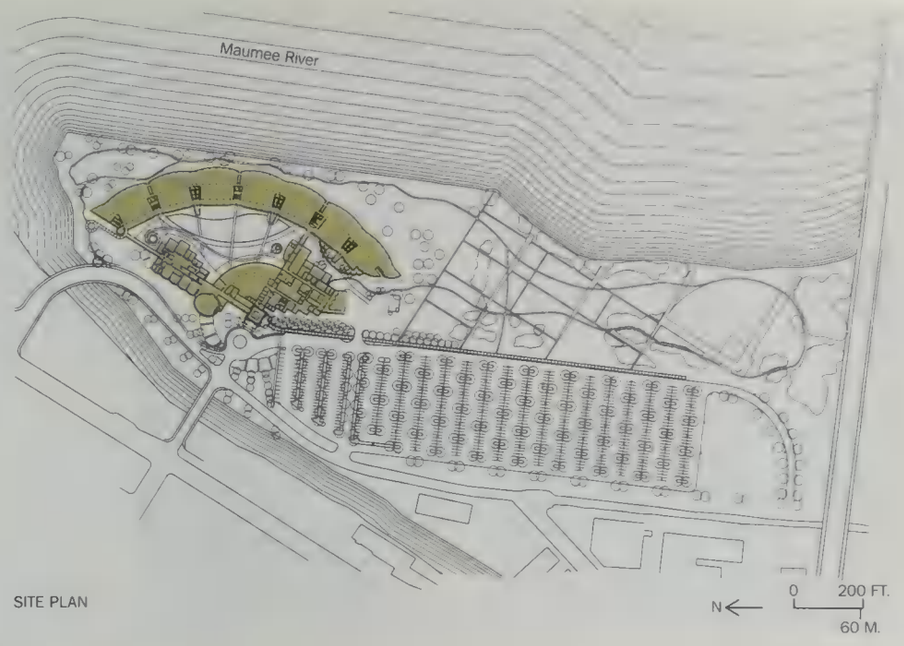
With a 45-acre site right on the river, the architects and client could explore new directions. The new headquarters has two main parts: the "Arc," where individual workstations and collaborative team spaces are located, and the "Village," which contains support areas. Here "support" is used in the most generous sense, for the Village includes a spacious cafeteria, a bank, a fitness club, a mental health and medical facility,

Cheryl Kent writes about architecture and design from Chicago.



Set on a 45-acre site on the edge of downtown, the campus (left) blends a lowrise suburban building form with urban strategies such as connecting to existing streets and allowing public access.





SITE PLAN

The workplace "Arc" is clad in ceramic-frit patterned reflective glass on the river side (left in photo above) and clear glass on the courtyard side (below).



Common areas have comfortable chairs to encourage impromptu meetings (left and opposite). The dining room (right) is part of a complex of support services that includes stores, a dry cleaner, and a health club.



a continuing-education center, a "general store," and a dry cleaner, in addition to the more conventional conference rooms and boardroom. Important elements are highlighted from the exterior and interior with fanciful forms in primary colors. A red tower that echoes the Owens Corning logo marks the entry, a blue tower points to a stair, and a yellow oval encases the learning center.

This is a building for walking. Pelli says, "In a three-story building, people will take the stairs. If they see one another, they will stop to talk. Elevators disassociate; people tend not to communicate in them." So elevators are tucked away to encourage employees to use the stairs—which are wide, welcoming, glass-clad, and pulled out from the building into the courtyard where they are bathed in sunlight. The company hopes these and other common spaces will spark serendipitous encounters, casual talk of work, awareness of others' work, and creative thinking.

What the company wanted was a [illegible] office space that might encourage collaboration; this [illegible] a level of warmth, comfort, and ease which accounts for the building's inviting, playful appearance. The courtyard was an early and key part of the strategy. Pelli says, "It used what a quadrangle of cloisters is in monastery plans. It's one way ancient forms to create collegiality and community among a group of people with diverse interests."

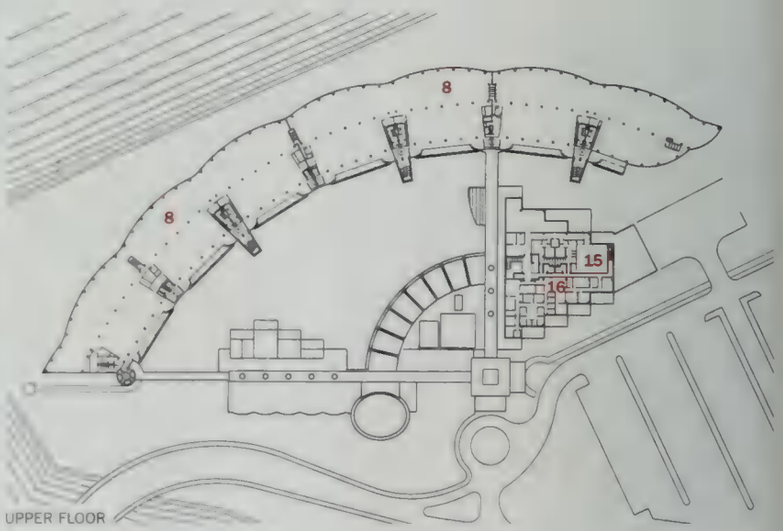
The Arc is 120 ft deep at its widest and tapers at either end. With daylight admitted from both the river and courtyard sides into mostly open-plan space, few employees are without views or sun. A 10-ft ceiling height allows light to angle deep into the office areas.

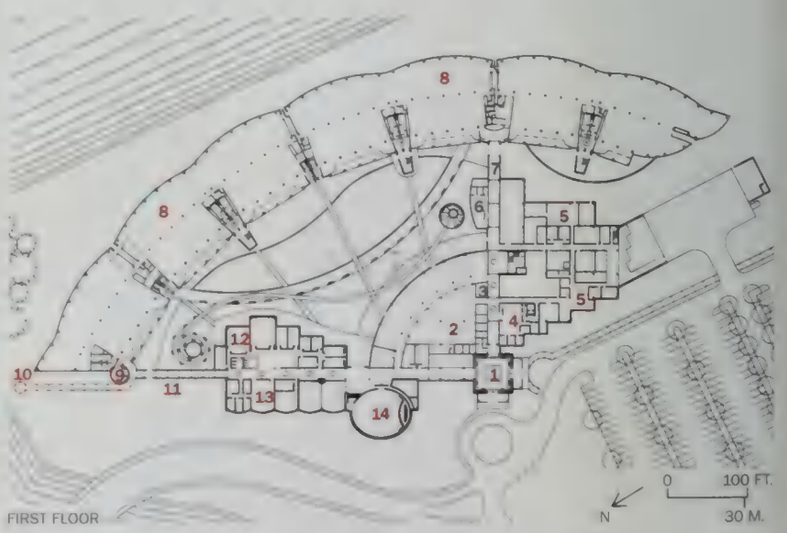
While Pelli's firm designed the Village and the public areas of the Arc, the office interiors were left to an unusual, if not unique, and intensive collaboration between Harley Ellington Design and Steelcase, Inc. (which went beyond its traditional role as a furniture supplier).

Steelcase sees itself in a new role as a knowledge-based company, says Scott Siegel, who was the "process leader" on the project. "We're accumulating much more knowledge than can be packed into products," states Siegel. And for the first time, it acted as a consultant in the design process. Using computer-based analysis tools, the Steelcase team conducted sample surveys with employees to study then-current work habits, and to suggest ways to adapt the office environment to management's goals for collaborative work.

About 90 different styles of working emerged from the study. "That was a snapshot," says Diane

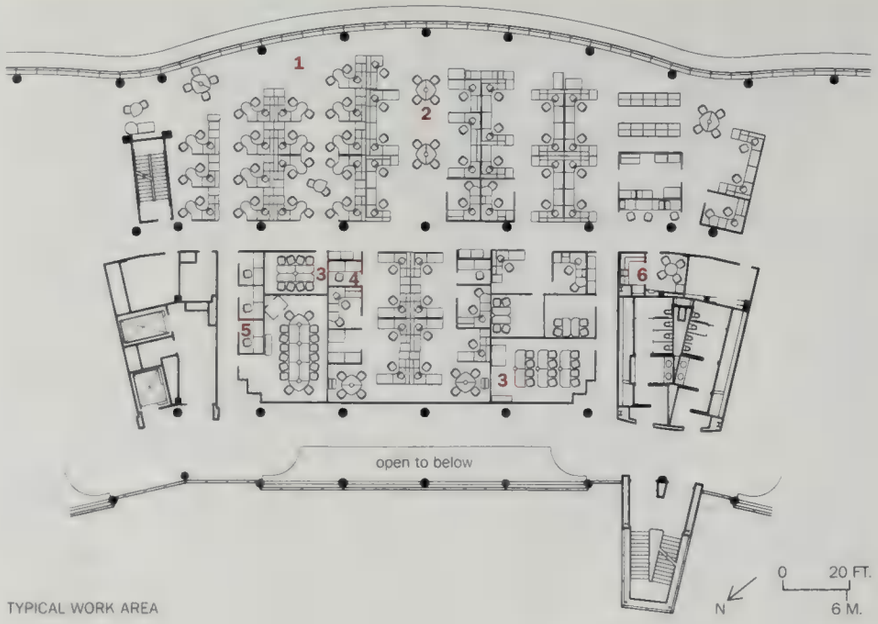
1. *Reception*
2. *Dining*
3. *Market*
4. *Credit union*
5. *Building services*
6. *Learning center*
7. *East-west corridor*
8. *Workplace*
9. *Stairs*
10. *Gazebo*
11. *North-south corridor*
12. *Meeting*
13. *Conference*
14. *Auditorium*
15. *Medical*
16. *Fitness center*



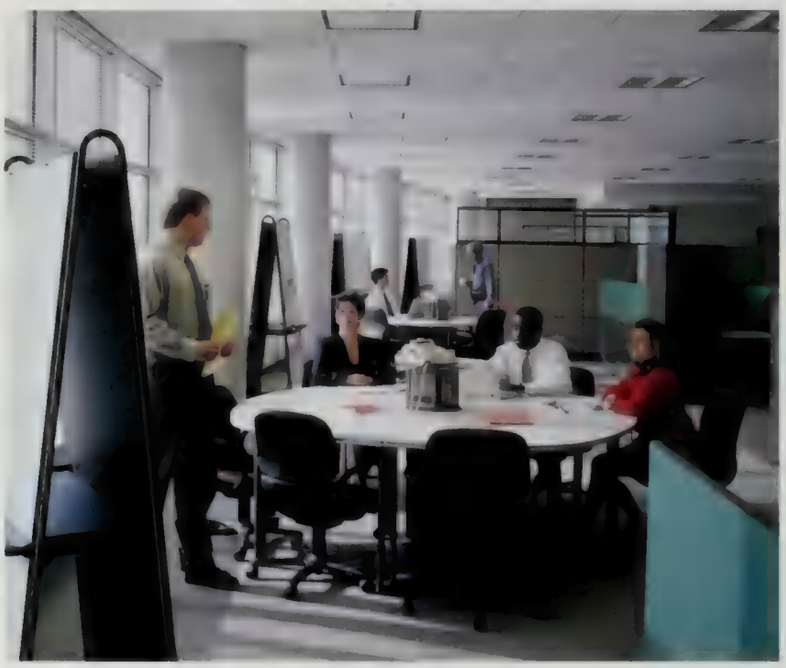


06.97 Architectural

To change the way employees work, the interior architecture provides a variety of work spaces, including "teaming" areas (below), open workstations (bottom), and corridor break areas (previous page).



1. *Open work area*
2. *Teaming table*
3. *Teaming room*
4. *Office*
5. *Quiet room*
6. *Kitchen*





Lammers of Harley Ellington. "It was not in alignment with what the company leaders wanted and that's where the design creativity came in"—getting the new space to reflect cooperative work styles encouraged by the company yet accommodate, as much as possible, employee needs such as privacy and quiet.

"We knew going in that this would not be a conventional space," Lammers continues, "but we didn't know what it would be. We knew 90 different workstations was not the answer either. The mantra became, 'Shifting focus from the individual to the group.'" The workstation may be smaller, but each employee gets more collaborative work space.

The interiors team was told to practice the corporate collaboration credo. Both Steelcase and Harley Ellington stayed on-site full-time for nine months, as they worked on the design—creating a studio in the existing headquarters where they built and rebuilt mock-ups. Owens Corning employees were encouraged to stop in, survey the work, and make comments. CEO Glen Heiner was a frequent early-morning visitor. It wasn't the design process Harley Ellington was accustomed to, but the client insisted on it and the results are better for it, Lammers says.

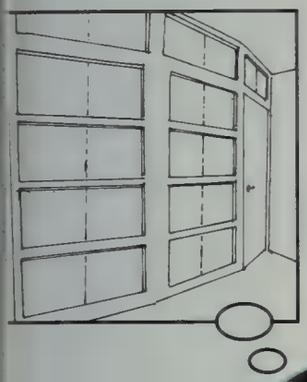
To achieve the necessary flexibility in this technology-driven company, the architects employed a raised-flooring system throughout the building. Within the foot-deep floor are the air-circulation system and cable distribution for phone lines and computers. Access lines can be brought up through the floor at almost any point in the building.

Taken as one measure of the interiors' success is the number of people—about 500—who have moved around since it opened last year. In this environment, flexibility is everything and the space is working if it's changing.

Before Owens Corning moved into its new facility, it was using 15 different information systems, and private offices took up 95 percent of the space. In the new offices, there is a single technology platform off of which are launched the laptops 70 percent of the employees use and the desktop computers used by the rest of the employees. The amount of space in the new building devoted to private workstations has dropped to 70 percent, while collaborative work spaces are up to 30 percent; the respective targets are 60 and 40 percent. ■

Manufacturers' sources
Glazed brick: *Ceramitec*
Aluminum-and-glass curtain wall: *Waltek (6000 & 7000 Wall)*
Demountable partitions: *KI; Steelcase*
Office furniture: *Steelcase*
Carpet: *Interface; Bentley*

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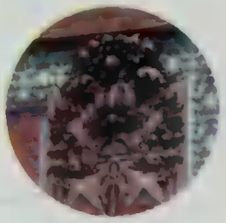
Effective May 5, 1997, Schuller Corporation has changed its name to Johns Manville Corporation.

CIRCLE 51 ON INQUIRY CARD



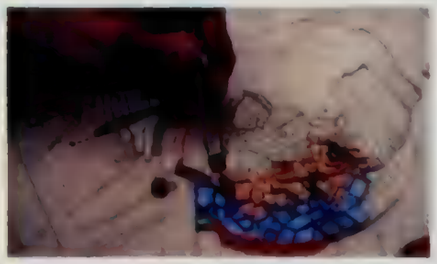


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Color in Architectural Concrete

DESIGNERS CAN BE CONFIDENT NOW OF GETTING HIGH-QUALITY WORK WHEN THEY SPECIFY COLORED FINISHES. HERE'S HOW TO GET ANY COLOR YOU WANT—AS LONG AS IT'S IN CONCRETE.

by Michael Chusid, AIA, and Nick Paris

The inventor of portland cement named his material after the cream-colored stone which it resembled, quarried in Portland, England. From its very beginning, then, concrete has been thought of in chiaroscuro terms of light to dark, providing a white or light gray background for the interplay of light and shadow. But while this attitude facilitated the exploration of the plastic potential of concrete by reducing design to pure form, it no longer satisfies many contemporary designers, who favor much richer surface treatments and the creative use of color. As a consequence, architectural interest in concrete color and texture has increased dramatically in the past few years.

Probably the most important factor behind the growing use of colored concrete is the increased availability of pattern-stamped or embossed concrete flatwork, virtually all of which is colored. Over the past few decades, the companies that manufacture stamping tools have trained a generation of concrete finishers in the craftsmanship necessary to do colored-concrete work. Designers can be more confident now of getting high-quality work when they specify colored finishes.

This demand has also stimulated more companies to get into the business of producing coloring materials for concrete, creating competition that has led to a decrease in the cost of coloring concrete compared to a number of years ago. Many architects first used colored concrete as an alternative to more-expensive finishes like natural stone and ceramic tile, and found that colored concrete substantially reduces construction cost, because one material provides both structure and finish. While the use of certain bold or intense colors may require a premium, many popular colors add less than a dollar per square foot to the material cost of concrete, and subtle shades of colors can fit almost any budget. Overall, colors add from 75 cents to $2 per sq ft to the cost of the concrete work. Added installation costs are minimal because many integrally colored finishes are installed the same way as uncolored concrete. Furthermore, the durability of colored concrete makes it attractive from a life-cycle-cost perspective.



Architects Spencer Associates matched the color of a cast-in-place Hoover Dam structure to blend with surrounding rock cliffs.

Designers have also discovered that, instead of being just a faux substitute for stone or other materials, colored concrete has a natural beauty all its own. Depending on forming and finishing techniques, colored-concrete texture can range from glossy smooth to as rough as a rock-strewn beach. It can be molded, embossed, or sculpted into almost any form or relief. Exposed aggregates in a range of hues yield further visual and textural effects. Colored concrete also has a natural appeal as an environmentally appropriate material. Concrete is produced from abundant raw materials and tinted with pigments, primarily iron oxide, which are inert and nontoxic. The most common method of coloring concrete, integral coloring, is as durable as the concrete itself, and will not weather or fade over time.

Continuing Education *This month's installment of the ARCHITECTURAL RECORD/AIA continuing education series covers concrete as a color medium. Use the following learning objectives to focus your study. After reading this article, complete the questions (page 200) and check your answers (page 202). AIA members may fill out the self-report form (page 202) and send it in for two AIA Learning Units.—Mark Scher, Director, AIA Continuing Education Programs and Products*

Learning Objectives *After reading this article and completing the questions, you will be able to discuss colored-concrete specification by:*

1. *Offering seven practical rationales for designing with colored concrete.*
2. *Citing three economic considerations.*
3. *Identifying specific coloring techniques, pigment and mixture tips, modeling considerations, and two forms of admixtures.*

Michael Chusid, AIA, CSI, CCS, is an architect and certified construction specifier and specializes in building-material evaluation. Nick Paris is vice president of Solomon Colors, a manufacturer of pigments for colored concrete.



A low-budget use of colored concrete: the drive and walkway of a Hawaiian bungalow are tinted to blend with the red volcanic soil.



Craftsman Buddy Rhodes colored this chimney piece with liquid pigments, and cast the concrete with a random-vein pattern.

Unlike paints or other applied coatings, integrally colored concrete does not require periodic repainting or recoating.

In structural applications, colored concrete can be used with cast-in-place, precast, and tilt-up construction to create walls and structures. Used in landscaping, concrete can match or complement the colors of the earth, reduce the glare of surfaces, create historical patinas, and unify a site. With the wide variety of forming and finishing techniques available, colored concrete can transform a plain wall or pavement into a canvas for graphics and patterns.

As the antithesis of concrete's utilitarian heritage, colored concrete is increasingly being used as an interior finish material, for flooring and countertops, shower and bath fixtures, furniture, and other specialty fabrications. Artisans who fabricate and install their own designs have pushed the limits of concrete as a medium by blending several colors in a single pour, embedding found objects into the surface, using innovative [illegible], and exploring the potential of the wide range of modern [illegible] reinforcing. As the results of their investigations diffuse into the mainstream of the design profession, today's experiment will become a standard part of tomorrow's palette of construction processes.

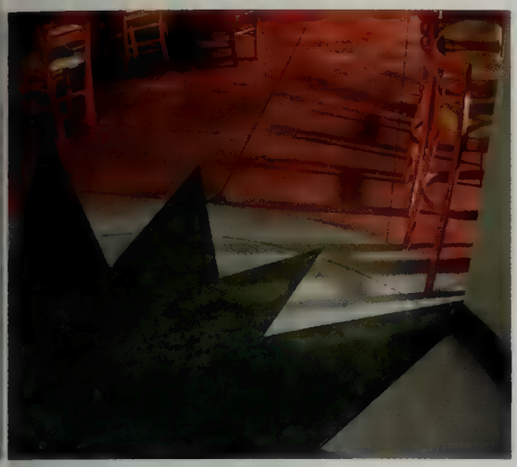
ARTISANS WHO FABRICATE AND INSTALL THEIR OWN DESIGNS HAVE PUSHED THE LIMITS OF CONCRETE AS A MEDIUM.

Coloring techniques

As with any natural [illegible], all concrete-coloring methods can exhibit some variation in shade across the face of a concrete structure or slab. This should not to be seen as a defect in the coloring technique. Indeed, even uncolored concrete exhibits variation in color due to variations in moisture content, forming, finishing, and curing. When a completely uniform look must be achieved, painting and coating should be considered in lieu of a natural-concrete appearance. To minimize color variation, all concrete used on a project must be consistent in materials, water-to-cement ratio, and workmanship. Color variations are most noticeable with smooth form finishes or hard-troweled surfaces; rough surfaces such as broomed slabs or sandblasted walls scatter the light and minimize the impact of color variation.

There are several techniques for coloring concrete. First, the color of the concrete itself is determined by the hue of the portland cement, sand, and aggregate in a mix. Portland cement varies in shade from white to medium gray, and is also available in a buff tone. The sand and aggregate in a concrete mix also affect its shade. With a smooth form or trowel finish, these materials are covered with cement paste, and may have only a minor effect on the color of the concrete. But sand and aggregates can have a significant impact on the concrete's appearance if they are exposed to view.

Exposed aggregate, the second method for coloring concrete, can be created by sandblasting or mechanically abrading a cured-concrete surface, or by scrubbing fresh concrete to remove the cement paste covering the aggregate. Chemical set-retarders make it easier to expose



Bold graphic on a restaurant floor is an integrally colored concrete overlay of an existing slab, finished with a clear sealer.



Formed al fresco with colored concrete, giant orbs rest on the colored-concrete plaza of St. Mary's Park in New Orleans.

aggregate, and can either be applied to the surface of flatwork or to the inside of formwork before placing concrete. In slabs and paving, exposed-aggregate finishes can also be created by seeding selected aggregate onto the surface of freshly placed concrete and working it into the surface with a trowel. Aggregates should be selected to achieve the appearance desired, and are available in a wide range of sizes, colors, and blends. A monolithic appearance can be created by using aggregate that matches the background color of the concrete; a different effect is created by using an aggregate color that contrasts with the concrete matrix.

The most widely used technique for coloring concrete is to add color additives right into the concrete mix. These additives contain pigments that are finely ground to achieve maximum tinting strength and that bond tenaciously with the cement to achieve a permanent coloration. Because the color extends all the way through a pour, minor chips, cracks, or spalls that may occur in the concrete surface will be less noticeable. Integrally colored concrete is the most versatile form of coloring, as it can be used in both vertical (formed) and horizontal (flatwork) applications; with all concrete-finishing techniques including form liners, exposed aggregate, and embossed or pattern-stamped finishes; and in concrete products such as masonry units, interlocking unit pavers, and roof tiles.

For coloring slabs and paving, the dust-on coloring technique is also an option. In this technique, proprietary blends of pigments, cements, and fine sand are dusted or broadcast over a freshly placed concrete slab. The material is then worked into the concrete surface by troweling. Some proprietary blends obtain a strength greater than ordinary concrete, and are used as colored hardeners over industrial floors. In other applications, several shades of dust-on colors, or dust-on color in combination with an integral color, are used to create variegated surfaces that resemble the look of natural stone or other faux materials.

The decision to use integral or dust-on color in a slab can be based on economics, the experience of local concrete finishers, and esthetics. On first glance, integral colors might appear to be more costly because enough pigment must be used to tint the entire thickness of a slab. In practice, however, integral colors in a typical 4- to-6-in.-thick slab cost about the same as or slightly less than dust-on colors used at the manufacturer's recommended coverage rate. A further economy results from the ease with which integral color can be installed; concrete can be delivered from the ready-mix producer with color already mixed in, and then placed and finished using the same skills and techniques required with uncolored concrete.

Dust-on colors, on the other hand, can require additional labor to apply, and not all concrete finishers have experience applying them. Dust-on colors may be more economical with certain dark and intense colors that would require an inordinate amount of pigment to achieve with integral coloring. Dust-on colors are also indicated for slabs with complex designs or graphics, since the dust-on colors can be used in conjunction with masking to form complex patterns. They may not be practical on large pours, however, where the concrete can begin to set before the dust-on colors can be worked into the fresh concrete surface.

Recently, techniques for staining concrete have also grown more popular. Stains generally result in a mottled patina. There are two types of concrete stains. The first type contains solvent-borne pigments or dyes that penetrate into the concrete surface in much the same manner as stains used on wood. The other method uses chemical treatments [illegible]

Concrete-finish options. As different surface profiles scatter light differently, the texture of concrete greatly affects the color appearance of the finished wall or floor. Texture also improves slip-resistance on floors exposed to rain. Some popular finishes include:

1. Broomed. Made by pulling special brooms across stiff, freshly floated or troweled surface. For variety, broom texture can be heavy or light, or in straight or wavy lines. This two-tone checkerboard is made by brooming adjacent panels in alternating directions.

2. Stamped. A powder release agent or plastic sheet is placed on the colored-concrete surface after floating. Special stamping tools are pressed into the concrete to create a pattern and then removed. Follow recommendations of the stamping-tool manufacturer.

3. Salt-pocked. Rock salt is pressed into the surface after finishing. After 24 hours, the surface is washed with water and a brush to remove all traces of salt. Allow concrete to dry before applying curing compound. A salt finish is not recommended in climates where water could collect and freeze in pockets.

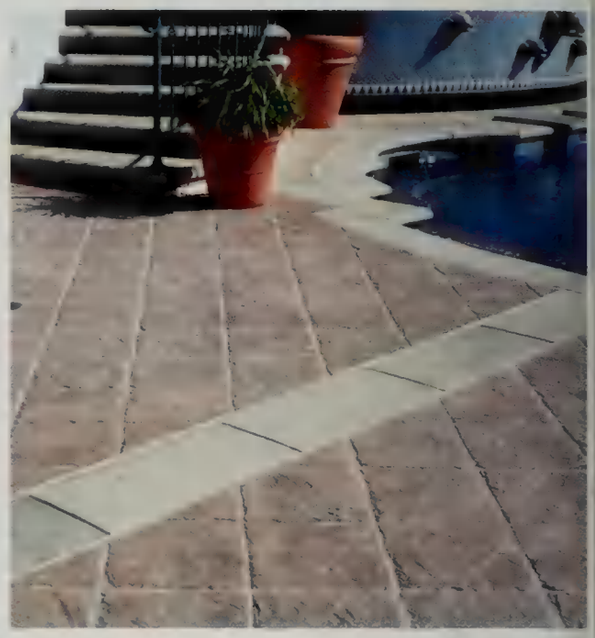
4. Mechanically abraded. Aggregates, such as this fractured green-quartzite on a tilt-up wall, are exposed by removing the surface cement using a high-pressure water wash, sandblasting, grinding, or bush-hammering. Exposure level can vary from barely revealing fine aggregate ("brush") up to one-third the diameter of coarse aggregate ("heavy").

5. Exposed aggregate. Aggregate is exposed by "seeding" the fresh concrete with aggregate, or spraying a surface set-retarding compound and scrubbing cement "paste" from the surface of the concrete. If retarder is used, exercise caution and follow manufacturer's instructions [illegible] be colored [illegible] smooth.

6. [illegible] design [illegible] tern, and [illegible] a wide range of [illegible] as well as [illegible]



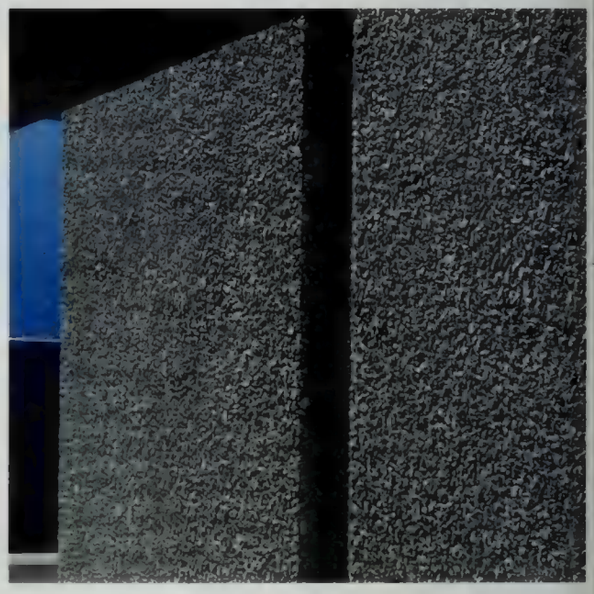
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5



6

the surface of the hardened concrete and chemically change the color. Stains are most useful for coloring existing concrete where the other methods of coloring are not applicable.

Achieving excellent colored concrete

The keys to successful concrete, whether colored or not, include consistency in materials and craftsmanship, and careful planning and detailing of the project. It is important to follow industry guidelines, such as the American Concrete Institute (ACI) standard appropriate to the type of work. The design and specification process should observe the following recommendations.

Pigments. Typical color additives are made from metal or mineral oxides, either recycled from iron or refined from the earth. Specially processed carbon blacks can also be used as an economical alternative to black-iron oxide to create gray and black shades, but cannot be used in air-entrained concrete, and surfaces must be sealed against water damage. All colorants should comply with ASTM C979—Pigments for Integrally Colored Concrete.

Mix design. Colored concrete is available ready-mixed from most concrete producers. The architect should consult the pigment manufacturer or concrete producer for advice about the type of pigments and dosage rate to be used to achieve the desired shade or hue. But the maximum amount of colorant should not exceed 10 percent by weight of cement content. For consistent color throughout a job, each component of the concrete should be from a single source, uniform in color, and consistently proportioned. Maintain 5-in. maximum slump unless otherwise specified. If greater workability is required, use water-reducing or plasticizing admixtures instead of added water. A low water-to-cement ratio minimizes shrinkage and cracking, maximizes hardness, and promotes a richer, darker concrete color. Adding water causes concrete to pale or "wash out." In locations subject to freeze-thaw conditions, specify an air-content range of 5 to 7 percent for improved workability and durability.

Some pigment producers offer "color-conditioned" admixtures. These are pigments preblended with plasticizers that are intended to help the pigments disperse throughout a mix. The same result, plus greater economy and control of the mix design, can be achieved with pure pigments by using them together with admixtures that are stocked by, and familiar to, the ready-mix concrete producer. These admixtures can be mixed separately, as required, into the concrete batch.

Mock-ups. On large or complex projects, specify a mock-up to establish that proposed materials and construction techniques provide the visual effect desired. These should be built at least one month before the start of construction, to allow the concrete sample to cure before final inspection. Use the same materials, placement, and finishing techniques that will be used in the field. For smaller jobs, most specifiers are satisfied with selecting or approving colors from a pigment manufacturer's standard chip set of colored-concrete samples. Under complex or critical job conditions, such as a historic-preservation project, trial batches (either field or lab samples) may be justified even for small-size projects.

Preparation of slabs-on-grade. Sub-slab moisture can affect the slab's color and appearance. Industry standards recommend that subgrade be uniformly graded, compacted, and dampened, and that it be free from standing water, hard or soft spots, ice, frost, and muddy areas. Add a 2-3-in. layer of compacted sand, gravel, or crushed stone. If a vapor barrier is used, overlap the sheets and tape holes in the barrier, then place a 3-in. layer of granular, self-draining compactible fill over the sheet to reduce shrinkage cracking. Grading should be sloped so that water drains away from the slab, and fill should be uniformly compacted and free of self-draining water at the time of concrete placement. Forms should be positioned to achieve uniform slab thickness. Follow ACI standards for reinforcement and joint placement to control cracking.

Preparation of formed concrete. As the porosity of the form will affect the eventual color, absorbent forms should be avoided. Steel and high-density overlaid plywood forms and plastic form liners are recommended. Specify tight joints; surface blemishes occur when water containing cement is allowed to leak from forms. Use a release agent to assure forms can be removed without damaging colored concrete; nonstaining, chemically active agents are preferable to oil-type form coatings. Remove forms in accordance with ACI 347. Different color hues may be expected between two surfaces where adjacent formwork is stripped at different ages, so this practice should be prohibited in spec. A prepour, pre-installation conference can be used to review the scheduling of form removal.

Placing concrete. As the transit-mixing time and cure rate will affect color, schedule deliveries for consistent mixing times for each load, so that trucks arrive just before concrete is required. Schedule placement and finishing of paving and exterior slabs to minimize exposure to hot sun before curing materials can be applied, and postpone concreting until windy conditions pass. Do not pour concrete if rain, snow, or frost is forecast.



A paving design by artist Lynn Koniecki was created using selected aggregate seeded into yellow-pigmented white portland-cement concrete following plywood stencil outlines.

Place in accordance with ACI 301. Keep concrete temperature consistent; temperatures between 65 and 85 degrees F (18 to 29 C) will normally produce more uniform color. Prevent segregation of mix ingredients. Concrete should be placed near its final location and moved with shovels; don't move the material with vibrators. Deposit concrete in lifts 12 to 18 in. (300 to 450 mm) thick. Insert vibrator at about 18 in. (460 mm) on-center, depending on the concrete mix and vibrator used; the vibrator should penetrate at least 6 in. (150 mm) into preceding layer. Do not over-vibrate.

THE KEYS TO SUCCESSFUL CONCRETE INCLUDE CONSISTENCY IN MATERIALS AND CRAFTSMANSHIP AND CAREFUL PLANNING AND DETAILING OF THE PROJECT.

Finishing. A variety of attractive finishes is possible (see Up Close). Textured surfaces produce more uniform-looking concrete than a smooth-troweled or formed surface, because the roughness of the material scatters light reflecting off the concrete. Textured surfaces are also more slip-resistant when wet than smooth-troweled floors and paving.

For most paving and slab finishes, wood bull floats and darbies (straight-edged smoothing tools) work better than magnesium tools. The installer should wait for bleed water to disappear before starting floating and troweling. Over-troweling or starting troweling late can lead to burns and dark spots. Do not fog the colored concrete with water or add water to tools or brooms; adding water causes the surface to pale or discolor.

On formed surfaces, sandblasting, high-pressure water jet, bush-hammering, and surface retarders can be used to texture the surface and expose the fine or coarse aggregate. Sandblasted finishes can be brush, light, medium, or heavy, depending on texture desired.

Patching. Fill holes and defects in a formed-concrete surface within a few days after form removal, to let patches and surrounding concrete age together and reduce the possibility of color variations. Use the same patching materials and techniques that were approved on mock-up. Make patches with materials from the same sources as the concrete. Because the stiff mortar used for patching typically has a lower water-to-cement ratio than the rest of the concrete, it will normally dry darker. To overcome this, white cement should be added to the mortar mix. Determine mix proportions by trial and error; a good starting mix is 3 parts sand, 1 part gray cement, and 1 part white cement. Add enough color to create the same color/cement mix rate used on the job. But do not include the white cement used to lighten the patch when figuring the color/cement mix rate for patching. If necessary, add aggregate to mortar mix so patches will have the same texture and appearance as adjacent concrete.

Curing. Uneven curing equals uneven drying equals uneven color. Use only curing compounds specifically recommended for colored concrete. Curing with water, membranes, or unapproved compounds can discolor concrete. Maintain concrete temperature between 65 and 85 degrees F (18 to 29 C) in most applications during the crucial first days after placing. Dark- or black-colored concrete will be exposed to additional heat-absorbing conditions and may require extra protection during curing.

Waterproofing and other coatings. The use of a high-quality sealer, anti-graffiti coating, or water-repellent treatment may help preserve the beauty of colored concrete by reducing efflorescence and staining such as that from highway soot. While some penetrating compounds, such as silanes and siloxanes, will have no effect on the color of concrete, other types of coatings may produce a gloss that will change the appearance of the color.

Joint sealants. Joint sealants used at construction and control joints in concrete are available in colors to match and blend in with concrete colors.

Efflorescence. A white, powdery salt deposit that can appear on the surface of concrete as a result of water evaporation, efflorescence is more noticeable on colored surfaces, as it makes the colors look faded. Reduce efflorescence by specifying a low water-to-cement ratio, using curing compound, and designing concrete mix for less permeability. Seal concrete against water penetration and leaks, and keep de-icing salts away from paving that is not fully cured. Remove efflorescence with mild detergent or mild acid cleaners as soon as possible. If removal is delayed, deposits convert to calcium carbonate, which is permanent. Follow cleaner instructions and test in a small area to make sure cleaner will not etch or discolor surface.

With the growing availability of coloring techniques, architects no longer have to settle for gray concrete. Instead, concrete can be red, tan, black, buff—almost any color your design requires. And if gray concrete *is* what is wanted, colored concrete can make sure you get just the right shade. ■

For more information on concrete and colored architectural concrete:

- *American Concrete Institute*
  P.O. Box 9094
  Farmington Hills, Mich. 48333
  313/532-2600
- *Portland Cement Association*
  5420 Old Orchard Road
  Skokie, Ill. 60077
  847/966-6200
  800/868-6733
  http//www.portcement.org
  "Color and Texture in Architectural Concrete," Pub. SP021. Portland Cement Association.
  "Finishing Concrete Slabs with Color and Texture," Pub. PA124. Portland Cement Association.
- *Precast/Prestressed Concrete Institute*
  175 W. Jackson Boulevard
  Chicago, Ill. 60604
  312/786-0300
  312/786-0353 (fax)
  Architectural Precast Concrete, Pub. MNL-122. 352 pp.; $75.
  Architectural Precast Concrete—Color and Texture Selection Guide. Pub. CTG-40. Binder format; $40.
  "Architectural Precast Concrete—The Solution of Choice for Shaping the Future," a short video demonstrating applications and installation techniques. Pub. SPV-11. $60.
  All of these PCI technical resources are offered to registered architects without charge on receipt of a request on professional letterhead.
- *Architectural Precast Association*
  PO Box 08669
  Ft. Myers, Fla. 33908
  941/454-6989
- *Concrete Reinforcing Steel Institute*
  933 N. Plum Grove Road
  Schaumburg, Ill. 60173
  847/517-1200
- *National Ready Mixed Concrete Association*
  900 Spring Street
  Silver Spring, Md. 20910
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- *Tilt-Up Concrete Association*
  P.O. Box 430
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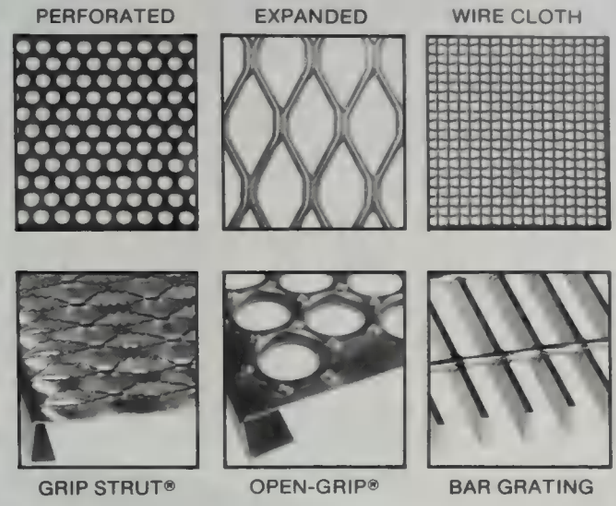
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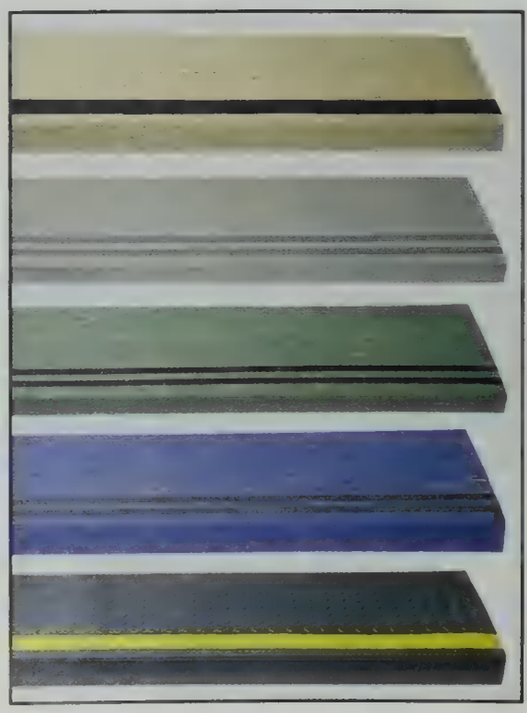
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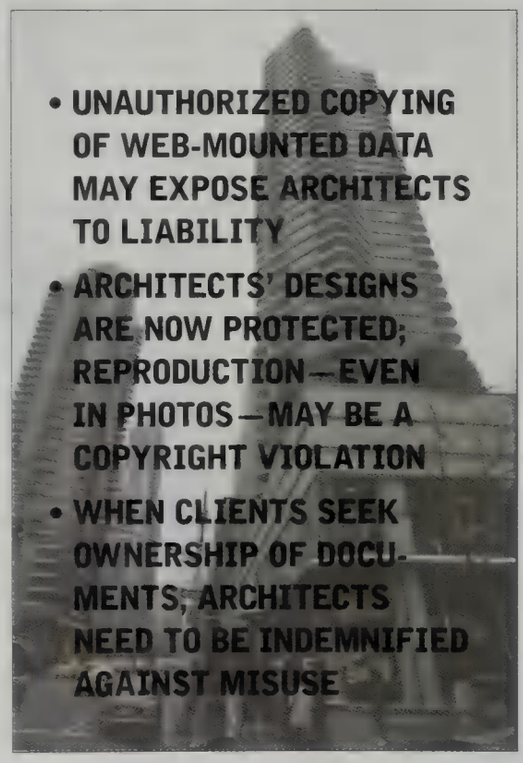
Copyright Law in the Age of the Web

WHILE RECENT CHANGES IN COPYRIGHT OFFER ARCHITECTS MORE PROTECTION, THE INTERNET MAKES DOCUMENTS MORE VULNERABLE

by B.J. Novitski

Now that digital technology makes it easier for architects to share drawings with consultants and clients, that benefit is backfiring in an unexpected way. The same characteristics that make electronic documents easier to share—accessibility and changeability—also make those documents easier to steal. Moreover, recent changes to copyright law have far-reaching implications for architectural practice, which are only beginning to be understood.

Although reports of outright theft are relatively rare, architects and their lawyers are beginning to imagine worst-case scenarios. What could happen if a client used a set of drawings for a second, unauthorized building? Or if a layperson found design drawings on the Internet and used them for his or her own purposes? The architect would not only be deprived of the income that might be forthcoming from the additional work, but could be liable for any dangerous conditions created by building a structure on a site for which it was not designed. Placing a copyright notice on drawings may discourage but does not prevent such theft scenarios. In theory, anyone could download a drawing, modify it so it is unrecognizable from the original, then add their own name and copyright notice. Without the telltale erasures that might be clues on paper drawings, it could be impossible for the original creator to prove ownership of the design.



Architect Philip Birnbaum redesigned the Savoy (right tower) after a lawsuit alleged he copied his own design for Trump Tower (left tower).

To strengthen the protection offered by copyright law, architects also need well thought-out contracts and a good dose of common sense. They should be concerned about limiting their professional liability in cases where their drawings are distributed to authorized users but subsequently misused. Architects should also be mindful of ways they can reduce the chances that their designs or drawings can be stolen and used for unauthorized purposes.

Who owns design documents?

The first, most important step is to write contracts that spell out exactly how electronic files are to be used and who owns which rights to them. The federal copyright law states that all rights to any drawing or design belong to the creator unless the rights are explicitly signed over to another party. In other words, an owner may pay the architect for services, but does not own the drawings, which are an instrument of service owned by the architect. Unless a written agreement says otherwise, the architect retains rights to the intellectual property of both the drawings and the underlying design. Through language in the owner/architect agreement, an owner licenses the rights to drawings for construction and facilities management, but such a limited license does not give the owner the right to reuse the same drawings for a second building, for example. During the course of design development, it may seem that ownership of the drawings is blurred as multiple architects, consultants, and others contribute to the design. Although joint ownership is certainly a legal option, this should be specified in writing before the project gets underway. To maximize their control over the design, architects may want to specify that they retain all rights in spite of any contributions by others. Alternatively, architects may specify that consultants retain the copyrights to the drawings and specifications they themselves prepare. Carol Patterson, of Zetlin & De Chiara, a New York law firm that specializes in design and construction law, advises her architect clients to retain as many rights as possible. At first, she says, building owners may demand all rights including copyright ownership, but it is often possible to negotiate a limited license for reuse, which will satisfy their needs for facilities management or future renovations. Such limited licenses do not change the architect's ownership of the copyright. "As part of the original agreement," Patterson says, "there should be an indemnification clause protecting the architect against any claims that arise from later changes in the work. At the end of the project, when the drawings are turned over to the owner, the architect can remove the title block to avoid responsibility for another party's future work."

The precaution of putting copyright notices on all disks, files, and title blocks is not necessary to establish copyright ownership, Patterson notes, but it is advisable. The notice serves as an important reminder to those who may see or receive the drawings that they cannot copy them without permission. Similarly, registration is not required to establish a copyright, but it is necessary to file with the copyright office

B.J. Novitski is a freelance writer based in Eugene, Ore., who specializes in architectural technology, practice, and education. She can be reached at bjn@efn.org.

before beginning a copyright lawsuit. And early registration offers additional benefits in the form of increased damage claims in the event of litigation related to copyright infringement. An architect working on renovation projects should be sure to investigate the legal status of existing drawings before using them for subsequent work.

Copyright now extends to design

The Architectural Works Copyright Protection Act of 1990 made architectural design—as well as drawings—copyrightable. In theory, this has improved protections for an architect's intellectual property because it provides more grounds to litigate against infringement. Kansas City architect and attorney Gregory Hancks, AIA, says: "Historically, the courts have not provided much teeth in the law when someone does something with an architectural drawing they've misappropriated. But now that the design itself is protected, the content of an architect's work, as well as the drawings, cannot be copied. The big change is that the architect now retains rights to certain design solutions even when they are made public in completed buildings or published drawings." The new law protects only designs that were built (or published) after 1990. Thus there have been as yet relatively few opportunities for such designs to be copied in a later building, so it is too soon to know how the courts will interpret infringement.

Nevertheless, Hancks warns that the new law may have unintended consequences that could prove harmful to architects. The new prohibition against copying design elements applies to both intentional and unconscious copying, and is at odds with the long-standing tradition within the profession of responding to historic precedent (or imitating it outright). Moreover, the distinctions between illegal copying and legal conformance to industry standards or local design regulations could be cloudy. If architects cannot agree among themselves about these design issues, it is unlikely that a court of law, lacking architectural sophistication, will be able to make judgments that architects will be happy with. Anticipating such legal uncertainties, owners and developers are beginning to ask architects to indemnify them against design infringement.

When "borrowing" becomes stealing

Even architects confident that their own work is original are burdened with carefully overseeing the work of employees and consultants to make sure they do no improper "borrowing" from other designs. Yet it remains uncertain how the courts will eventually interpret similarities between designs. The few examples to date suggest that court cases will not be limited to high-profile architectural masterpieces but will more commonly involve judging the uniqueness of more mundane construction. In one of the first lawsuits brought under the new law, the court bypassed the original intent to protect great works and awarded damages for infringement of the copyright in the design and drawings of tract housing.

The good news, Hancks notes, is that now architects can go after thieves not only for stealing drawings (whether paper or electronic) but also for stealing designs. This may be especially beneficial now that electronic distribution makes the drawings so much more vulnerable. The architect need only prove that the design was copied without having to demonstrate how—or even if—the drawings themselves were misappropriated. But exactly what will constitute that proof will likely depend more on a body of legal opinion that has yet to be developed.

Now that some municipalities are allowing electronic documents to be submitted for building permits, additional concerns are emerging. Such permit information has always been part of the public record, but until now has been difficult to copy. In New York City, permit application information is accessible through public electronic kiosks; in other locales, it is already being exchanged via the Internet. According to New York architect and design-management consultant Jerry Albert Laiserin, AIA, review agencies and architects all appreciate the convenience, but these electronic submissions make proprietary design work more vulnerable. "Imagine a big-name architecture firm," Laiserin says, "that has invested the time, energy, and collective experience of hundreds of people over the years. If their signature details are available for anyone to copy, where is the firm's unique advantage? Their copyright may not be infringed by others studying their millwork details, but even without direct copying, they've still suffered some degree of competitive loss." What's worse, Laiserin notes, is that, although some degree of protection can be provided in architect-owner or architect-consultant agreements, architects do not sign agreements with the general public. The only protections for electronically available information is the public's respect for the copyright notice and the threat of future litigation.

THE NEW PROHIBITION AGAINST COPYING DESIGN ELEMENTS APPLIES TO BOTH INTENTIONAL AND UNCONSCIOUS COPYING

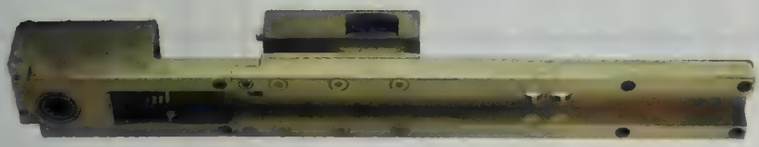
Layering promises to limit leaks

Fortunately for architects, technology can partially seal some of the leaks that technology creates. Increasingly, Laiserin predicts, architects will remove proprietary information from the drawings they submit for public review. By turning certain CAD layers on or off, they can include the minimum amount of information needed for officials to review code, health, safety, and welfare issues but withhold casework or custom lighting fixture details. Laiserin adds: "Different subsets of construction documents will be created for different purposes. The permit set will include just enough to get approval; the set that goes out to bid will be more complete. The set for the client will be different from the one that's retained for internal review and different still from the final record set that goes back to the client at the end of the job for use in facilities management. Technology makes it easy and affordable to tailor the documents for the intended audience."

Copyright and liability issues surrounding electronic documents are currently under consideration at the AIA, where the Standard Form of Agreement between Owner and Architect, AIA Document B141, is being revised. In past editions of the contract, paper drawings, other documents, and their copyright remain the property of the architect. The owner licenses them for specified construction and facilities-management purposes. The new edition will most likely extend that policy to CAD files, and will include a guide for modifying the model language to suit particular projects. The new edition will also address the question of whether a design professional is entitled to rely on the validity of existing electronic documents any more than they rely on existing paper drawings. A final version of the document is expected in the fall.

This decade has brought dramatic changes to both technical and legal frameworks in which architects share their work with their clients, consultants, and the general public. Maintaining rights to the intellectual property will require both technical and legal strategies. This means architects will need to be increasingly vigilant about the electronic data they release and the contracts they craft.

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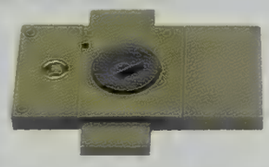
Cast bronze bottom arm

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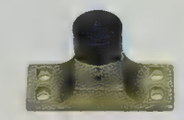
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CIRCLE 60 ON INQUIRY CARD

Flooring Safety, By Design



Photography by Robert Burley/Design Archive

Slip resistant flooring once meant ribbed, metal grates, diamond plate metal flooring, or special ceramic tiles. Today, selecting slip-resistant flooring is a constantly evolving and increasingly complex process. Consideration must be made for specific needs for specific areas.

Founded in 1919, and inventor of the original sheet vinyl safety floor in 1955, Altro Floors stands today as the world leader in resilient safety flooring, with an ISO 9002 classification. Altro Floors is also an Allied Organization of the American Institute of Architects and is an active participant in ASTM F6 and ASTM F13 Committees.

The manufacture and durability of Altro safety flooring is unique among slip-resistant sheet vinyl floors. Although some surface-treated slip-resistant floor finishes wear off, Altro's aluminum oxide grains are distributed throughout the entire thickness of the flooring, ensuring consistent slip resistance, even after many years of wear. All Altro safety floors meet or exceed current ADA or OSHA slip-resistant Static Coefficient of Friction requirements for level surfaces and several products exceed requirements for ramps.

As an architect, how do you begin to select the safest flooring? Where can you turn for assistance in the flooring selection process?

To help with this process, Altro Floors offers this overview in association with the AIA/ ARCHITECTURAL RECORD Continuing Education Series. Architects can earn two Continuing Education credits by reading this section, studying the learning objectives and answering the questions at the end of the unit.

LEARNING OBJECTIVES

After reading *Flooring Safety, By Design* and completing the following exercise, you will be able to:

1. Identify the legislative guidelines and legal tests relating to the specification of slip-resistant flooring.
2. Define the Static Coefficient of Friction (SCOF) and how it relates to the specification of slip-resistant flooring.
3. Undertake a needs analysis to determine the slip-resistant floor that is the most appropriate for your requirements.



1. WHERE AND WHY SLIPS AND FALLS OCCUR

Every floor can become a potentially dangerous walking surface. Certain facilities are at higher risk than others, including:

- Supermarkets
- Healthcare facilities
- Schools
- Hotels and motels
- Laboratories
- Health clubs
- Factories

Certain areas may also pose a higher risk, including:

- Produce departments and delis
- Commercial kitchens
- Electronic assembly areas
- Rest rooms
- Catwalks, balconies and other elevated areas
- Pool decks

HE STATIC COEFFICIENT OF FRICTION

ccording to the American Society for Testing Materials, STM F 1637-95, the Standard Practice for Safe Walking rfaces, slip resistance is "the relative force that resists the ndency of the shoe or foot to slide along the walkway surface. ip resistance is related to a combination of factors, including e walkway surface, the footwear bottom, and the presence foreign materials between them."

ıe measurement to assess the slip resistance of any floor rface is called the Static Coefficient of Friction (SCOF). It easures the traction between a person's bare foot or shoe le and the walking surface. It is used to determine the slip sistance of any floor surface.

The ASTM currently sets the national standards for slip resistance. The two most common SCOF tests for flooring surfaces are ASTM D 2047 (for resilient flooring) and ASTM D 1028 (for ceramic or quarry tiles). The U.S. Department of Commerce requires a minimum SCOF of 0.5 according to test method ASTM D 2047, otherwise known as the James Slip Test.

But, in the U.S. and all over the world, there continues to be debate about testing methods for slip resistance. Very few building codes specify slip-resistant floor surfaces. Specialists continually disagree about which slip testing method should be the standard, as many prove to be unreliable – particularly in wet testing.

FACTORS IN SPECIFYING SLIP-RESISTANT FLOORS

OSHA, FDA, USDA, ADA, ADAAG, ASTM. The list goes on and on. What do these mean to the architect?

All of these acronyms are important, as they represent groups who introduce legislation, test methods, specifications, recommendations, requirements and information to help the consumer make the best possible selection of building materials.

LEGISLATION

There is a growing number of laws being written to protect the public against hazards. These laws specify the minimum precautions that must be taken. For example:

Americans with Disabilities Act (ADA) 1990

This act dictates a minimum SCOF of 0.6 in level areas and 0.8 on ramps. Accessible routes must be "stable, firm and slip-resistant" and new construction or alterations must utilize surface materials "specified to be slip-resistant." If there is a choice of suitable materials, the ADA recommends "choosing the materials with the higher coefficient of friction, particularly for ramps."

REGULATION

Regulations and building codes carry recommendations and guidelines, but sometimes stop short of specific recourse for non-compliance. For example:

Occupational Safety & Health Act (OSHA) 1970

In this act, employers are charged with providing "a place of employment free from recognized hazards" and proposes that all walking surfaces have a minimum SCOF of 0.5.

American Institute of Architects (AIA) Academy of Architecture for Health

With the assistance of the U.S. Department of Health and Human Services' Guidelines for Design and Construction of Hospital and Health Care Facilities, the AIA states, "Floor materials shall be readily cleanable and appropriate for the location. Floors in areas used for food preparation and assembly shall be water-resistant... Floors subject to traffic while wet (such as shower and bath areas, kitchens, and similar work areas) shall have a slip-resistant surface."

LITIGATION

If a slip-and-fall occurs, employees may file Workers' Compensation claims or law suits based on negligence. You and your client may also be liable for personal injury suits by customers and the general public.

In such cases, the "Cause of Action" would be applied by the courts. Although negligence is a type of conduct, a cause of action founded upon negligence requires more than conduct. The traditional formula for the elements necessary to a cause of action may be stated briefly as follows:



Photography by: Robert Burley/Design Archive

1. A duty, or obligation, recognized by the law, requiring the actor to conform to a certain standard of care, for the protection of others against unreasonable risks.
2. A failure to conform to the standard required.
3. A reasonably close causal connection between the conduct and the resulting injury. This is what is commonly known as "legal cause", or "proximate cause".
4. Actual loss or damage resulting to the interests of another.

As an architect, you need to be proactive by offering your client your most professional judgment when specifying any building material. In other words, lawsuits can turn into disasters, especially if no demonstration of due diligence has been shown. And remember, as the consultant, you may be liable if an accident were to occur and your reasons for choice are not documented. Always take precautionary measures by combining your expertise with observance and compliance with the laws and regulations.

EMERGING NEEDS OF THE AGING POPULATION

A demographic revolution is taking place across America. According to the White House Conference on Aging, for the first time in history, there are more Americans over 65 than under 25, with over 6,000 adults turning 65 every day. By the year 2030, the number of people over 65 will double. Senior citizens are particularly susceptible to slips and falls, making slip-resistant flooring where they walk that much more essential. According to the U.S. National Center for Health, approximately 20-25% of community-residing adults have difficulty with walking; problems with balance and muscle weakness are also common. Senior living industries need to be careful of the floor surfaces they specify, but in addition, so must industries such as restaurants, hotels and cruise ships, all of which are becoming more dependent upon an older customer base.

III. HOW TO SELECT A SAFE FLOOR

Now, it's time to select a safe floor. Who to listen to? What flooring surface is right for your client? Here are a few things to consider:

ARTICULATE AND ITEMIZE YOUR CLIENT'S NEEDS

Performance - How will the flooring perform in wet and dry conditions? Once you've evaluated your client's needs, consult both OSHA, ADA and other requirements to be in compliance.

Durability - Heavily-trafficked areas will need wear-resistant, longer-lasting flooring.

Abrasion Resistance - How long can the flooring maintain its slip resistance? If the abrasives are surface-only, the floor will lose its effectiveness more quickly.

Maintenance - All slip-resistant floorings will require maintenance to keep them safe and clean. Advise your client of any extra procedures that may be required. Unfortunately, as the consultant, you may be liable if proper maintenance is not followed. The architect must effectively communicate the proper procedures to the client by referring them to operations manuals, etc.

Impact Resistance - Is there an area in your client's facility where heavy items and rolling stock can cause damage? Hard flooring may crack or split under heavy rolling loads or severe impact.

Appearance - Perhaps you must recommend a floor with a choice of colors, textures and patterns. Homogenous flooring will continue to look good, even as it wears.

Life Cycle Costs - These extend well beyond the cost of the flooring, installation, maintenance and other out-of-pocket expenses. Consider the life expectancy of the floor, how it will help your client prove due diligence if an accident should occur, and the cost savings in avoiding litigation.

EVALUATE PRODUCTS

Evaluate products against each other. Working closely with user groups and your client, or "project programming", will help you in your mission to select the safest flooring surface that will meet your client's total performance requirements.

IV. SAFE FLOORING OPTIONS

COMPARISON OF SLIP-RESISTANT SURFACES

Material	Resistance											
	Slip Resistance Dry & Wet	Wear	Impact	Indentation	Grease	Ease of Maintenance	Seam Integrity	Hygiene	Speed of Installation	Underfoot Comfort	Sound Reduction	Appearance
Safety Sheet Vinyl	Initial - E Long Term - E or G (Dependent on type)	E	E	G	G	F	E	E	G	G	F	G
Standard Sheet Vinyl	F	G	G	G	G	G	E	E	G	G	F	E
Vinyl Composition Tile (VCT)	F	F	P	P	G	G	P	F	E	F	F	G
VCT Slip-Resistant	Initial - E Long Term - F	F	P	P	G	F	P	F	E	F	F	G
Linoleum	F	E	G	F	F	G	G	G	G	G	G	E
Rubber	G	G	E	F	P	G	F	F	G	G	E	G
Epoxy – Textured	Initial - E Long Term - F	G	P	E	E	F	E	G	P	P	P	F
Epoxy – Smooth	P	G	P	E	E	G	E	E	P	P	P	F
Quarry Tile – Smooth	F	E	P	E	E	E	F	F	F	P	P	F
Quarry Tile – Textured	Initial - E Long Term - P	F	P	E	E	P	F	F	F	P	P	F

E=Excellent G=Good F=Fair P=Poor

*This is a general guide only. Product and circumstances will vary.

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V. SHORT AND LONG TERM SOLUTIONS

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SOME COMMON PRACTICES... AND WHY THEY DON'T WORK

Safety short-cuts save money immediately, but can be the most costly in the long run. While several options will help reduce slips and falls initially, they won't offer long-term performance.

Some surface-treated slip-resistant floor finishes wear off, which minimize their effectiveness. Remember, true safety flooring has slip-resistant properties **throughout**, ensuring longer-lasting safety and performance.

In today's safety-conscious world, it's important to do all you can to help everyone walk safely. Designing safety into your client's floors can reduce the number of accidents, help them comply with laws and regulations, and provide a safe environment for everyone.

CIRCLE 61 ON INQUIRY CARD

AIA/Architectural Record Continuing Education

Questions:

1. What is the Static Coefficient of Friction (SCOF)?

2. What is the national standard for resilient flooring slip resistance, and why does there seem to be confusion about requirements?

3. What are the legislative minimums of SCOF?

4. Define the test of negligence.

5. When evaluating your flooring needs, what are twelve key topics to consider?

6. You've been asked by a building owner to specify a slip-resistant floor for a high traffic area of a hospital emergency room. List your choice of flooring material along with the reasons for your selection (budget is not a concern).

For self-report form, turn to p202.

Answers:

1.) Duty recognized by law requiring conformation to a certain standard of care. 2.) A failure to conform to required standards: 3.) A reasonably [illegible] the resulting injury. and 4.) Actual loss or damage to another.

1. SCOF is the measurement to assess the slip-resistance of any floor surface.

2. ASTM D 2047 currently sets the national standards for resilient flooring slip resistance. Confusion comes from a lack of slip-resistance requirements in building codes and disagreement on different testing methods.

3. The ADA dictates a minimum SCOF of 0.6 in level areas and 0.8 on ramps. Although not legislation, OSHA proposes that all walking surfaces have a minimum SCOF of 0.5.

4. Duty recognized by law requiring conformation to a certain standard of care. A failure to conform to required standards: 3.) A reasonably [illegible] the resulting injury. and 4.) Actual loss or damage to another.

5. Slip resistance, wear resistance, grease resistance, speed of installation, hygiene, ease of maintenance, and appearance.

6. Choices may vary, but generally, Linoleum, Standard Sheet Vinyl or Rubber offer good slip resistance, ease of maintenance, hygiene and architectural consistent all requirements that may be necessary for an emergency room.

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Continuing Education Series

Two-Component Lighting, The Total Solution for Glare-Free Illumination

LUXO

Learning Objectives

After reading the accompanying article, answering the questions, and reviewing the answers, you will be able to:

- *Contrast traditional ambient lighting approaches with a two-component lighting strategy.*
- *Describe the advantages of, and barriers to, using indirect lighting as a key element in lighting plans.*
- *Cite at least three benefits of new technical developments in indirect and task lighting systems.*

UNLIKE ORDINARY LIGHTING, VARIABLE PANEL HEIGHTS, OVERHEAD STORAGE CABINETS AND WORKSTATION ACCESSORIES POSE NO PROBLEM WITH A TWO-COMPONENT SOLUTION.



The Intelligent Alternative to Glare-Induced Problems

American corporations lose three billion dollars in pain-induced absenteeism, a recent report of a Louis Harris & Associates survey states. The National Lighting Bureau attributes much of this to office lighting no longer suited to the tasks employees perform and to the employees themselves.

The NLB notes that there is a direct link between poor lighting and eyestrain, headaches and similar pain-causing problems. Human eyes, which have to adapt to working under daily conditions of lighting glare, often become strained and are forced to remain that way.

Adjusting the angle of the body to avoid lighting glare only compels the employee to assume an unhealthy, ergonomically incorrect posture, straining neck and back muscles.

Why are corporate offices, places which usually pride themselves in today's globally competitive economy on their productivity, responsiveness and computerization, willing to put up with improper, inadequate lighting?

The NLB indicates that poor office lighting exists because frequently the tasks employees perform are different from the past. Namely, the switch from paper-based work to that which is computer-based. Far too many people, including corporate management, simply assume that "light is light," which is not the case at all.

Computer-based tasks require employees to look into a mirror-like screen with comparatively poor contrast. Further, the characters of words on a computer screen are not as sharply defined as those on paper. As lighting design professionals intrinsically understand, the type of lighting needed for computer-based tasks is quite different than the lighting needed for paper-based tasks, and requires a different solution.

Factors Affecting Office Lighting Standards Since The 1980s

If architects and professional lighting designers learned anything from the decade of the '80s, it is that corporate building and staffing priorities change rapidly when events dictate.

Profligate spending on corporate "monuments" was rapidly curtailed beginning with the stock market fall of October, 1987, and went into high gear two years later with a second major drop in market prices and corporate (or personal) profits. "Downsizing" entered the corporate vocabulary here and abroad for the first time, and now appears to have become a lasting part of everyday terminology.

Since that time, and spurred on by increasing global competition, the drive by corporations has been on cutting operating costs and overhead. Building renovation in the late 1990's continues to outpace new construction. When a corporation moves into "new" office space today, it is more often than not likely to be a renovated or vacant existing structure, rather than a new building.

Inside those renovated office spaces, the ostentation common to the '80's has been replaced by an emphasis on productivity and flexibility. One exception to the more practical emphasis of the '90's has, somewhat curiously, been office lighting. It, more often than not, remains largely unchanged inside office environs. When it has changed, such change is often only a partial one. The result is office lighting that is not only incorrect, but likely to cost a corporation millions of dollars in productivity losses and compensable health claims.

This last statement is especially relevant, given the continuing proliferation and increasingly wide-spread use among all strata of office employees of desktop computers. Computers are viewed quite literally as an aid to controlling corporate costs, speeding workflow and boosting productivity. Computer literacy, thought in the 1980's to be the province of specialized knowledge and task workers, is today mandatory for office employees in virtually every position, including management.

Office Lighting As Villain

Most office lighting is still thought of as largely comprising a single component: ambient lighting, in row after row of recessed or suspended ceiling fluorescent "troffers." The reasons for this appear to be logical. An office

space being constructed or expanded requires necessary illumination. Since office lighting has not achieved the brand identity of office furniture and is considered to be a commodity product, the routine solution is to specify product with the lowest initial cost, as part of a total lighting "package," and often have an electrical contractor install ceiling fluorescents from one end of a space to the other. Little regard may be given to the layout of workstations and individual offices in the space - to say nothing of who among the people occupying the space will be using desktop computers and who will not!

An inescapable reason why a one-component approach to office lighting continues today is attributable to the natural inclinations of building architects, professional lighting designers who must follow the instructions of their clients.

The specifying architect or professional lighting designer, when devising a lighting plan for a given office space, is concerned primarily with the "main" lighting in the building or space. That main lighting is the ambient or overhead lighting which illuminates the broad expanse of employee office space, corridors, training rooms and other specialized areas.

Because such lighting may be wired and installed early in today's "fast track" interior renovation or construction process, it is often times ordered before individual floor plans have been developed or finalized. Most ceiling fluorescents when installed, are still aimed directly down into the workspace. That's where the work that needs illumination is taking place, isn't it?

Ambient Lighting

Glare, reflections and shadows on the computer screen are frequently considered a "minor" problem, affecting only those employees who use computers heavily. Once the design plans for the lighting and the space have been approved, employees who experienced glare problems can gerrymander their own solutions: They can play with reangling their computer terminal in an attempt to minimize screen "washout" and distractions caused by shadows and reflections; reangle the position of their heads, necks and torsos in relation to computer screens; or, the all-too-frequent last resort, tape cardboard around the perimeter of the computer screen in an attempt to shield it from overhead glare and reflections.

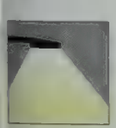
Once specified and installed, most ambient lighting is unchangeable without changing an entire lighting layout; adding greatly to lighting costs and disrupting productivity. All of the foregoing is the nature of a one-component approach to office lighting.

Task Lighting As Stepchild

Although most ambient lighting is not easily changed, for years there has existed a well-known "second component" that is inherently flexible and adaptable to lighting needs at the workstation itself: Portable, adjustable task lighting. Why isn't this important second component, a supplement to the ambient lighting in an office, employed more often to help overcome the localized problems of glare, reflections and shadows on worksurfaces and computer screens?



Indirect Lighting



Task Lighting



The problem task lighting typically faces, if it enters the office lighting equation at all, is that it occurs near the end of the office specification process. After the "main" lighting, after the office furnishings. Task lighting is often categorized as an "accessory" - easy to overlook as an unnecessary frill, especially if the corporate client does not mandate it as a requirement of the office or lighting design plan.

Symmetric Versus Asymmetric

As previously noted, the professional lighting designer, if included in the space design and lighting specification process, is primarily concerned with the "big picture" the overall area or building lighting; not the task lighting. If lighting is the province of the building architect, and if task lighting is included in the specifications, it is often an afterthought, separate from the ambient lighting plan in time, in responsibility and in fact.

Clients who have not mandated task lighting as a requirement of the design plan and budget at the outset, usually realize the need only after all work is complete – and the lighting designer and space architect have moved on. In such cases, it is the

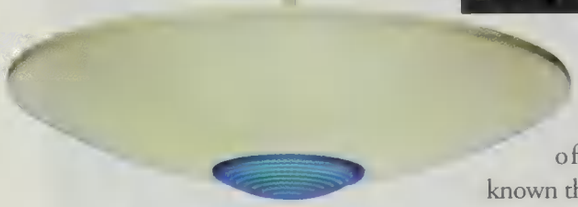
Two distinct forms of adjustable task lighting can be specified, symmetric or asymmetric. Symmetrical task lighting casts its light in an inverse conical shape. Modern units employ a choice of either compact low-wattage fluorescent, tungsten halogen or incandescent light sources, positioned inside the reflector, above eye level, and generally protected by a clear shield. The light they emit should be infinitely adjustable, employing counterbalanced spring arms with dual pivot points and rotatable lampheads.

Asymmetrical task lighting casts its light obliquely, across work surfaces at obtuse right or left angles with a sharp beam cutoff. Shadows on worksurfaces or computer screens can be completely eliminated with asymmetrical task lighting. Whichever form of task lighting is selected, symmetric or asymmetric, it should embody the same concealed light sources and adjustability that allows it to adapt to its user, rather than the other way around.

LUXO

Because task lighting is always completely portable, it moves readily with the changing workplace; to accommodate, different workstations or private office layouts as well as the increasing number or size of VDT screens.

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A POPULAR CHOICE FOR CONTEMPORARY INDIRECT LIGHTING IS LUXO'S RONDA CEILING PENDANT FIXTURE.

The Cornell Office Lighting Study

The more astute specifier, however, may recall a landmark study of a Xerox Corporation office facility, begun in 1989 and completed in 1990. The study was designed by an acknowledged specialist in office ergonomics and human factors - Dr. Alan Hedge, a professor at Cornell University's Department of Environmental Analysis, part of the New York State College of Human Ecology.

The Cornell study showed that an alternative form of ambient fluorescent office lighting, indirect, cut the number and frequency of reported employee visual- and health-related problems affecting job performance by approximately 50%. Employees at different job strata, working in open-plan partitioned spaces, or in windowed or windowless private offices, shared positive results equally.

Secondly, when indirect fluorescent lighting [illegible] most vocal individuals or department heads within the office who make it known that they need task lighting for their workspaces. That leaves the corporate facilities manager having to quickly react – to go out and get lighting from a catalog, a local office supply store or from the first manufacturer's sales rep who may come to mind.

In any case, again, it is an afterthought, purchased and installed separately from the ambient lighting already in place. The result is two distinct examples of one-component thinking. Unfortunately for those who have to work in such an office space, it is "the norm" when it comes to lighting design and specification.

AMBIENT LIGHTING (PART II)

From an architect's and client's converging interests, and because of today's greater than ever pressures to bring a project in on time and under budget, ambient lighting, employing linear fluorescent tubes aimed directly down into the space, is still often thought to be the most cost-effective solution to office illumination, as it was in the 1980's. Such lighting units can be purchased at deep discounts from many large lighting manufacturers.

It is true that new, more energy-saving versions of linear fluorescent tubes have been introduced to the market in the last few years. Ballasts that power these units are now available in compact electronic models that, while they do [illegible] more up front, operate more [illegible] over a longer life-span [illegible] without the annoying hum of [illegible] magnetic ballasts. It is easy for end users to think they see a cost/value relationship it would seem foolhardy to ignore, by moving away from the routine approach to specifying lighting and potentially encountering resistance.

If indirect fluorescent lighting provides a demonstrably better solution to glare and other problems attributable to direct office lighting, why hasn't it become the universal standard against which all office lighting solutions are measured?



Why Man Can Not Live by Indirect Lighting Alone

There are three answers. Perceived cost is one. Indirect lighting does cost more than direct lighting, *initially*. At the time of specification and purchase, thought is usually given to the impact of direct ambient lighting on employee health and productivity. Corporate America is geared towards a "Buy now, pay later" mentality, rather than one of "Buy now, save later."

A second reason indirect lighting hasn't overtaken direct is that most indirect lighting luminaires are no more flexible or adaptable to today's changing office configurations and work methods than their direct counterparts. Recessed ceiling troffers and most suspended units are equally inflexible once installed – whether direct or indirect in design. Installed in long rows, they remain immovable without incurring substantial costs and employee disruption, regardless of the changes or needs occurring in the office spaces below.

A third reason indirect lighting lags in replacing direct units is the least understood, yet most obvious to lighting specifiers and corporate clients alike.

It is but a single component of what requires a two-component solution to achieve glare-free, productivity-enhancing office lighting, that offers the greatest long-term economy.

Such a two-component solution is ideally found when the newest, most advanced forms of indirect fluorescent luminaires are paired with portable, personally adjustable symmetric and asymmetric task lighting.

These new forms of indirect luminaires may be specified in a range of flexible mounting options, lamp configurations and outputs that employ state-of-the-

art computer-enhanced parabolic reflectors. They are the antithesis of long, monotonous rows of ceiling troffers, still so commonly specified.

As the first component in a two-component approach to glare-free office lighting, new ceiling-suspended indirect models offer a range of high-performance, yet economical light outputs, to match changing employee densities and the degree of desktop computerization in the office space below.

Wider spacings are possible between fixtures with these indirect units. In many cases, fewer fixtures need be installed, resulting in greater economy of purchase, installation and maintenance, whether for a new building or retrofit.

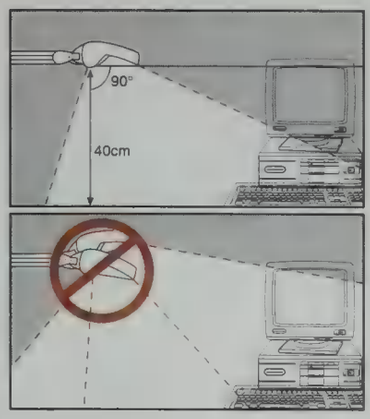
Further, ceiling-suspended models can be supplemented with matching indirect wall units, and floor, panel- or worksurface-mounted luminaires. All can be of like design for continuity, and can be specified model by model with office-specific, task-specific efficiency.

The second component in a two-component lighting solution is personally adaptable task lighting. As with the newest indirect units, an exceptionally broad selection of compatible models is now available. The range of task lighting mounting options can parallel those of indirect lighting.



There are desktop models with weighted bases; edge-clamp models that attach to worksurfaces or panels; models that affix to tool rails or panel connectors above the work-surface; and floorlights that articulate or can be positioned to provide glare-free illumination of papers, books and computer keyboards.

Lighting specifiers should seek those indirect units which offer both high-performance and more economic light levels.



INTENSE USE OF VIDEO DISPLAY TERMINALS SHOULD HAVE THE ANGLE OF THEIR AMBIENT LIGHT IN RELATIONSHIP TO VDT SCREENS 45° (OR HIGHER, TO MINIMIZE GLARE ON THE SCREENS.

Upgrading Present Lighting Systems With Two-Component Lighting

Personally adjustable task lighting, used in conjunction with the indirect area lighting, completes the two-component system.

Specifying architects and professional lighting designers should consider communicating the benefits of a two-component lighting solution to their clients, whenever a new lighting plan is conceived or a present lighting problem addressed.

Upgrading building and office lighting systems to an energy-efficient, glare-free two-component approach does not always require removal of lighting presently installed. Manufacturers, such as Luxo, offer complete families of indirect lighting that comprise a range of wall fixtures, floor lights and furniture-mounted designs, which allow existing glare-causing ceiling fixtures to simply be turned off and left in place.

Since ceilings are most often replaced in office-building renovations, however, and an electrical contractor is already part of the design/build team, direct lighting systems can be removed for replacement with two-component systems.

Because the best indirect units employ high-performance, compact fluorescent light sources, energy-efficient, even illumination can be attained with fewer fixtures while meeting Illuminating Engineering Society of North America (IESNA) recommendations for lower, more economical light levels. The new forms of indirect lighting can be positioned where they provide even, proper area illumination without glare, reflections or shadows on work surfaces and computer screens. With the addition of portable, adjustable task lights, the lighting designer and end-user have a fully functional, economical and glare-free two-component system.

All Lighting Is Not Created Equal



LUXO

FOR A COPY OF A COLOR BROCHURE ABOUT TWO-COMPONENT LIGHTING, OR A PERSONAL PRESENTATION OF THE SUBJECT, READERS ARE INVITED TO CONTACT THEIR LOCAL INDEPENDENT LUXO LIGHTING SALES REPRESENTATIVE; OR LUXO CORPORATION, 36 MIDLAND AVE., PORT CHESTER, NY 10573. TELEPHONE: (914) 937-4433. FAX: (800) 648-2978. IN CANADA, CONTACT LUXO CANADA, 1957 LE CHATELIER, LAVAL, QUEBEC H7L 5B3. TELEPHONE: (800) 361-3993. FAX: (800) 567-9215.

TWO COMPONENT LIGHTING - THE INTELLIGENT SOLUTION

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AIA/Architectural Record Continuing Education

CONTINUING EDUCATION

The preceding section *Two-Component Lighting, The Total Solution for Glare-Free Illumination,* sponsored by Luxo Corporation, is part of the AIA/ARCHITECTURAL RECORD Continuing Education Series. You can receive continuing-education credits by reading the section, studying the learning objectives and answering the questions below. Check you answers against those provided on the bottom of the page and return the self-report form as indicated.

LEARNING OBJECTIVES

After reading the accompanying article, answering the questions, and reviewing the answers, you will be able to:

- *Contrast traditional ambient lighting approaches with a two-component lighting strategy.*
- *Describe the advantages of, and barriers to, using indirect lighting as a key element in lighting plans.*
- *Cite at least three benefits of*

For [illegible] page 241

QUESTIONS

1. Explain some of the problems engendered by one-component ambient lighting and why this approach might be characterized as a process problem.
2. Task lighting is often used in an office to help solve overhead lighting glare problems. Why is task lighting itself not an ideal solution to ambient light problems?
3. List the pros and cons of the newer indirect lighting systems.
4. What are three reasons for the slow adoption by corporate clients of indirect lighting systems?
5. Your client wants standard overhead lighting with superior parabolic reflectors for lighting direction. These units are available from a supply house at attractive rates. How would you support a case for indirect ambient lighting?
6. Your client is a software company characterized by shifting and variable-number project teams. Outline the elements of a state-of-the-art, two-component lighting system that would meet their needs.

ANSWERS

1. *Ambient or overhead lighting of main areas often causes glare, reflections and shadows on work surfaces and computer screens, and may indirectly lead to ergonomic problems and loss of productivity. The flexibility of this lighting approach is limited through a process where ambient lighting is often specified before floor plans and occupant needs are finalized, and where various forms of indirect lighting costs more initially than many direct lighting methods.*
2. *Task lighting is often brought in after the fact or late during the design, and may not be properly budgeted or coordinated with the general ambient lighting.*
3. *Improvements include a complete absence of glare, long-term energy savings, more compact electronic ballasts with no hum. This form of lighting is generally more accepted by clients than direct lighting approaches. However, indirect lighting is perceived as more expensive due to its up-front cost.*
4. *Indirect lighting is perceived as more expensive due to its higher initial cost. Most installations are not any more adaptable to changing office uses than direct lighting. Alone, this approach lacks the combined strengths of a two-component lighting strategy.*
5. *Indirect lighting can solve workplace and worksitation glare problems. The Cornell Lighting Office Study found that indirect lighting substantially reduced employee visual and health-related problems, and user preference was for indirect over direct lighting. These points can translate into productivity and economic benefits for corporate users.*
6. *This system would conserve energy with lower light levels (but still meet ADA guidelines). Glare problems would be eliminated through a combination of widely spaced ceiling-suspended indirect lighting and complimentary adjustable wall, floor and worksitation task lighting, based on office and task specific needs.*

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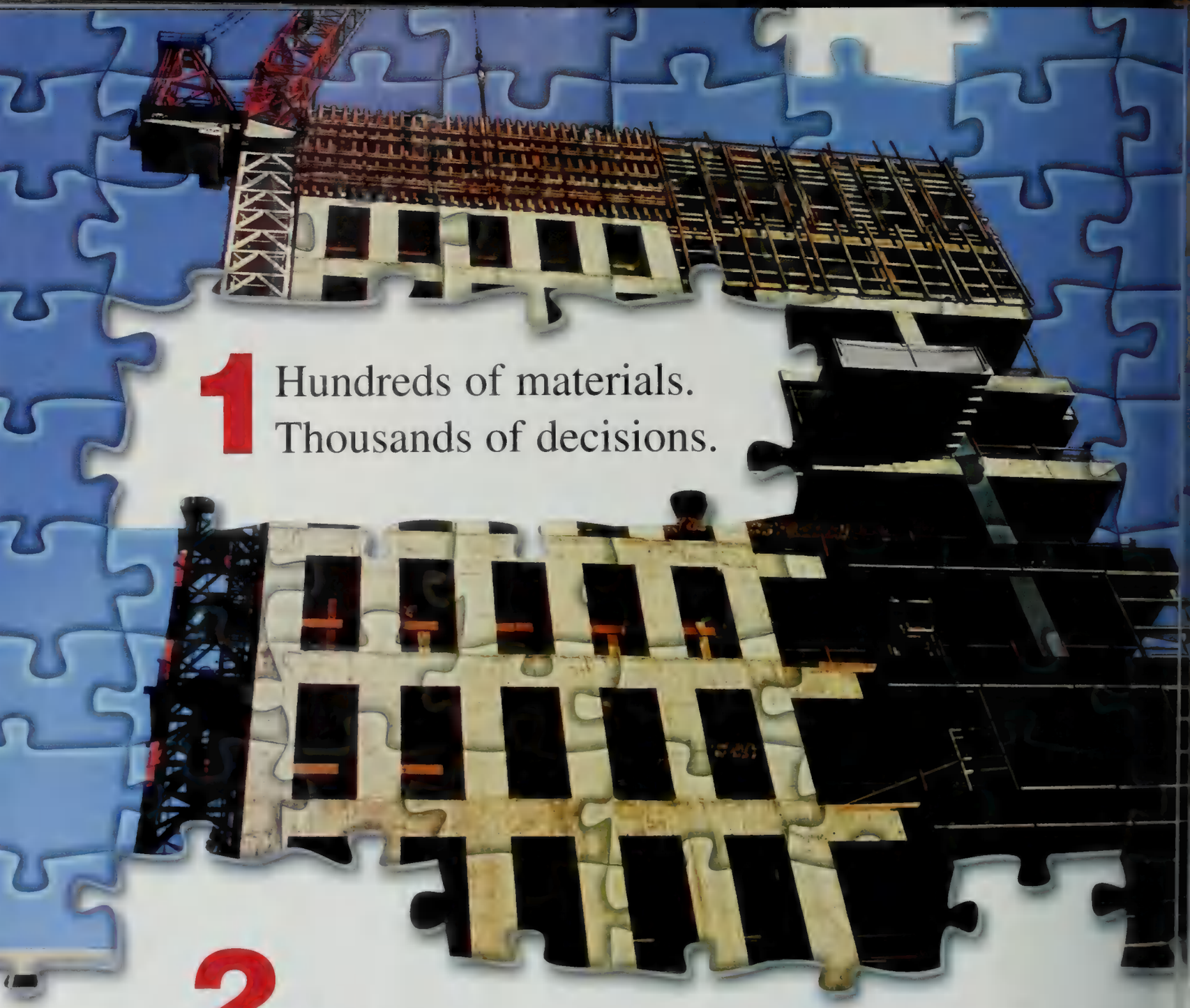




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CIRCLE 63 ON INQUIRY CARD

NEW PRODUCTS

New Products in June covers the workplace and some new furnishings for it. Included: Platform from Office Specialty, a wire-distribution system that comes along with desktops, privacy partitions, and storage elements. There are workstation hvac components that let each employee control the heat, ventilation, task lighting, and masking sound at his or her own personal work space, and curvaceous desks that add swank to the home office. The Briefs pages include a look at some new contract seating as well. And office equipment is also featured in the Literature section.—*Joan Blatterman*

OFFICE SYSTEM SOLVES SOME CABLE-MANAGEMENT PROBLEMS

The first production model of Office Specialty's Platform office-furniture system debuted at NeoCon 1996, and its wire-management capabilities have attracted a lot of attention in the year since. Intending to solve what it saw as cable-management deficiencies in the open-office environment, the company started with the wires, not with the desk, developing an open-architecture frame that puts voice, data, and electric-power cables at point of use.

The cutaway view below highlights the basic concept behind Platform: tubular-steel uprights connect to two-section steel tracks without creating an obstructing post. Face panels or "tiles" snap onto this framework in such a way as to create a continuous void over the length of the installation. Cables are supported at any height horizontally by "fishbone" wire managers that can slide along the connecting rail. Cables are really laid in; there are no holes or apertures through which fragile wire must be threaded. Assembly requires three parts: a long bolt (for straight runs); a shorter bolt, for right-angle connections; and a universal bracket, which supports work surfaces, storage bins, and shelving accessories from the steel uprights.

Powering the system

Sales VP Ralf Miethner describes the wire-management issue as "not how many cables you can handle, but how you handle them." Platform can work with both "home run" and "zone" wiring layout schemes, as electricity can be brought into the framework at the top of any panel, with a ceiling feed kit, or anywhere along the base, which is set just off the floor on self-leveling feet. Panels can also fit flush against a perimeter wall or support column to receive building power, fed directly into the face of a panel without needing a cumbersome offset space.

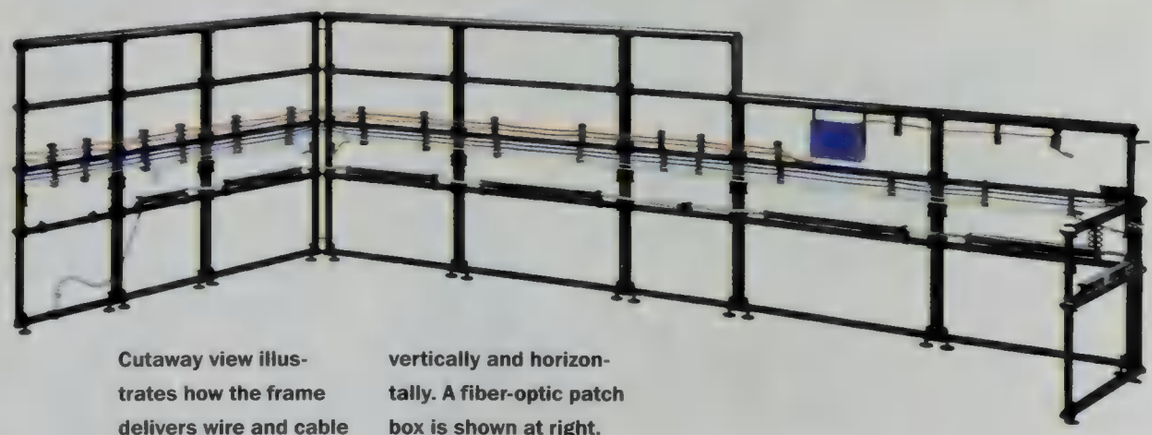
Once in the framework, AC is accessible where desired, below or above the desktop. Power can be furnished as four circuits, with two dedicated to computers, or in three individual circuits. The wire-management layout keeps fragile copper or fiber-optic cables free of crimps and strain damage from pulling. The bend radius presents no problems, and the flexible placement options allow specific feeds to be located as necessary to maintain code-recommended separation distances from sources of interference. The wire-management space is large enough to allow for a "goof loop" of additional cable coiled inside the frame. Fiber-optic patch-connection panels can fit right inside the frame, then break out to individual zip cords, keeping the needed lengths of expensive fiber-optic to a minimum.

Platform can be specified with cabinets for any particular requirement, such as 7 1/2-in.-deep CD-ROM shelves, or 10 1/2-in.-high file drawers that let even wheelchair-height workstations have a full complement of file space. The snap-on panels that cover the framework can be specified in a solid face, plain or embossed; perforated for better air flow; open or glazed. There are 60 standard paint colors, and any shade can be custom ordered. 800/563-7128. Office Specialty, Holland Landing, Ont.

CIRCLE 250



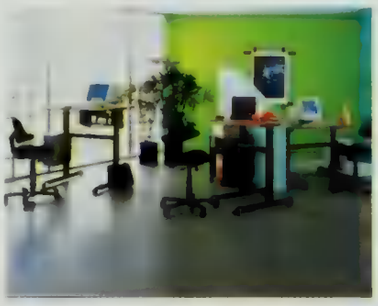




Cutaway view illustrates how the frame delivers wire and cable vertically and horizontally. A fiber-optic patch box is shown at right.

CHANGE, TECHNOLOGY DRIVE DESK DESIGN

Currently, there is no legislation in force mandating ergonomic-design criteria for office furniture. Architects and designers concerned with the contents of eventual standards might contact the Human Factors and Ergonomics Society of Santa Monica, Calif. An accredited standards developer responsible for ANSI/HFES 100-1988, which deals with recommended illumination and sound levels as well as with furniture configurations, the society maintains a mailing list of those interested in participating in the public review of the document this fall. Copies of ANSI/HFES 100, referenced in some federal government procurement specifications, can be ordered from the society for $25; phone 310/394-2410.



▲ Height-adjustable desks

A foot-button-operated torsion spring lets users move Generation IV computer desks from a lower, seated height up to 45 in. for standing applications. Platforms come in rectilinear, corner, and "organic" shapes; leg-mounted brackets hold the CPU. 603/432-4495. SIS Human Factor Technologies, Inc., Londonderry, N.H. **CIRCLE 251**

► Universal spine wall

A new stackable wall, Causeway works with both Haworth and other manufacturers' furniture to cut the cost of relocating voice, data, and power service. Modular base units in widths from 24 to 48 in. wide stack to create a utility corridor that allows unconstrained access at ADA-compliant, "beltline" level or at any other desired location. Work surfaces, storage bins, and shelves are held by universal brackets at any point along the Causeway. 800/344-2600. Haworth, Inc., Holland, Mich. **CIRCLE 252**



▼ Office productivity booster

Personal Environment workplace hvac aims to enhance an employer's bottom line by improving workers' comfort level. A new circulated-air version with telescoping ducts permits retrofit into existing spaces where conditioned air is supplied through conventional ceiling systems. Components allow employees to control the air temperature and flow, radiant heat, task lighting, and background-noise masking of their individual work spaces. 414/274-5412. Johnson Controls, Inc., Milwaukee, Wis. **CIRCLE 253**





▲ Site-specific solutions

Newly created Options division specializes in customizing product to fit corporate needs, such as this multimedia storage cabinet that doubles as a locker. Meridian, Spring Lake, Mich. **CIRCLE 254**

▼ Into the wall

The Reasons workstation is based on an off-modular unit that permits overhead storage cabinets and other components to be placed anywhere along the system's horizontal rails. This frees up vertical surfaces to accept a flat-panel display screen wherever it would be most comfortable to view. Snap-on facing options include wood veneer, fabric, perforated, or glazed. 610/429-1400. Transwall, West Chester, Pa. **CIRCLE 256**





◄ Desking for rapid change

Vitra's Ad Hoc components include Multi Tables, easily turned and reconfigured for individual or team tasks, and the Mono Wall, which supports heavier, less-mobile equipment and serves as a base station for various rolling work surfaces and personal file carts. Designed by Antonio Citterio and Glen Oliver Löw to work as a production unit in either home or office, the furniture includes a "vertical desk" that is powered, with adjustable shelving for computers and reference materials. 212/539-1900. Vitra, Inc., New York City. **CIRCLE 255**

▼ Safe at home

Shown in its full wraparound "Oval Office" configuration, Atelier is a new cherry-veneer home-office line that features curved tops and rounded edges. Shipped ready to assemble, the components shown retail for $3,099. 608/849-4181. Techline, Waunakee, Wis. **CIRCLE 257**




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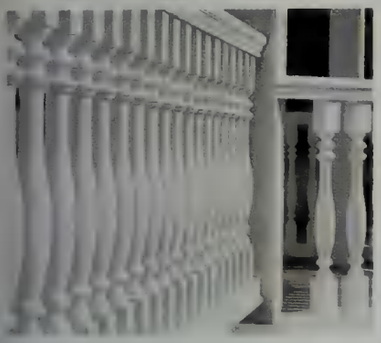
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PRODUCTBRIEFS



▲ Forever young

Part of an extensive line of weatherproof, molded-polymer architectural accents, this balustrade is a reinforced structural assembly. Balusters, posts, and rails come in several styles, such as Victorian and Georgian. Complete specification manual offered. 419/445-0116. Style-Mark, Inc., Archbold, Ohio. **CIRCLE 258**



▲ Cooking ventilation

A new line, chimney-style vent hoods come in curved shapes, or angled as shown above, and black, white, and stainless finishes. For either wall-mount or island applications, hoods conceal a four-speed fan and halogen or fluorescent lighting. The chimney section can be adjusted to fit different height requirements. 800/656-9226, x. 15. Thermador, Huntington Beach, Calif. **CIRCLE 259**

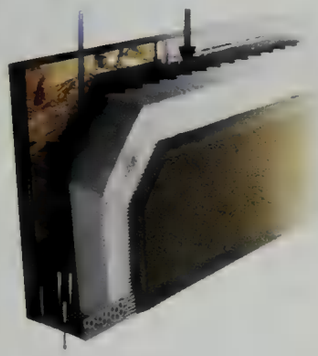
▼ Remodel-ready whirlpool

The Cetra bath offers a full complement of spa features in an "affordable," space-saving footprint that fits into existing tub alcoves. Tubs have six hydrotherapy jets, built-in back support, and armrests; an integral skirt has a built-in service panel. Unit is made of fiberglass-reinforced, high-gloss acrylic in either right- or left-hand versions. 510/938-7070. Jacuzzi, Inc., Walnut Creek, Calif. **CIRCLE 260**



▼ Drainage-plane EIFS

Specifically designed for wood-frame construction, residential as well as commercial, Parex's Water Master exterior allows any incidental moisture entering behind the system to drain downward for release. Components include a vapor barrier and flashing membrane; a venting track eliminates backwrapping at bottom edges. Full details offered on disk. 800/537-2739. Parex, Inc., Redan, Ga. **CIRCLE 261**





▼ Sleek transition moldings

Designed to meet ADA change-of-level guidelines, new flexible transition pieces allow wheeled and foot traffic to move easily between different flooring surfaces with varying heights without tripping. Edges conceal cracks and carpet edges; trim comes in all of this maker's color options. 800/899-8916. Johnsonite, Chagrin Falls, Ohio. **CIRCLE 262**



▲ Post-war tripod

Designed in the mid-'40s by T. H. Robsjohn-Gibbings and George Hansen, a classic tripod lamp is being reissued in the two versions shown above: a 21 1/2-in.-high table lamp and a three-bulb, 47 1/2-in.-high floor model. Electric cord is hidden within one of the slim legs; a pull chain operates the lamp. Hinson & Co., Long Island City, N.Y. **CIRCLE 264**

▼ Break-resistant lights

A breakthrough-resistant decorative glazing is now offered with caming in clear or colors. A more-secure glass-light incorporates a pane of laminated safety glass to duplicate the effect of bevels and v-groove designs less expensively. Pease Industries, Inc., Fairfield, Ohio. **CIRCLE 265**

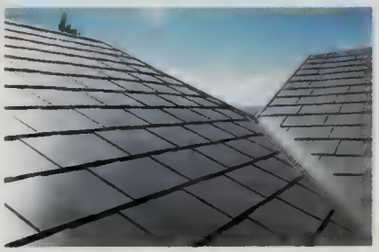


◄ Metal fabrication

A metal atelier specializing in furniture, display units, architectural details, light fixtures, and railings will execute commissions in steel, wrought iron, stainless steel, aluminum, copper, brass, and bronze. The firm offers a range of unusual surface patinas, such as this curved balcony rail done in steel with a sweet satin finish. Portfolio offered on request. 212/233-1192. Metalmorphosis, Inc., New York City. **CIRCLE 263**

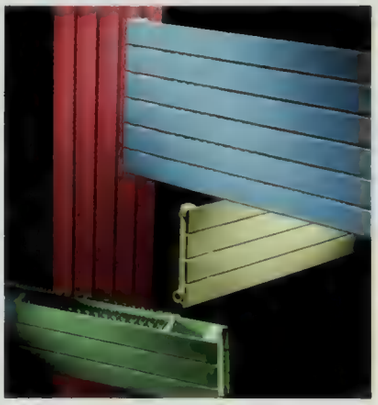


PRODUCTBRIEFS



▲ Built for extremes

Said to withstand winds up to 110 mph, new metal roofing panels combine the durability of metal with the aesthetic appeal of shingles. Available in solid copper and 25 different painted finishes, the roof is lightweight and resistant to oil-canning. 970/949-1078. Vail Metal Systems, Vail, Colo. **CIRCLE 266**



▲ Low-profile heating

An alternative to central heating, panel-style radiators heat hydronically. Available in four different styles, the radiators, 2 3/4 in. in height and 2 1/8 in. in width, have concealed plumbing and are compatible with solar-power and other hydronic systems. 716/648-3801. Panel Radiator, Hamburg, N.Y. **CIRCLE 267**

► Sheers and blinds combine

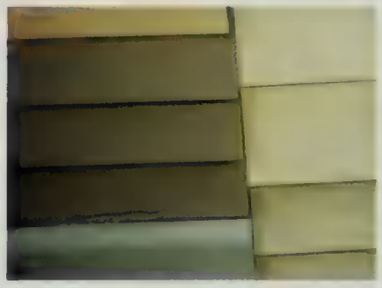
Providing both privacy and light control, vertical sheers accomplish the task of traditional horizontal blinds. Luminette Privacy Sheers feature fabric vanes bonded to an almost transparent face fabric. Rotating the fabric vanes controls the amount of light filtering through the cloth. Fully open, the vanes appear as an opaque sheer. A privacy-granting drape emerges with the vanes closed. Beyond just a translucent sheer or drape, the flexible vanes allow varying degrees of light control. Extending from a 5 in. header, the face fabric is available in 12 different shades from ivory to blue. The fabric vanes, in neutral white, present a consistent view from the outside. 201/327-8200. Hunter Douglass, Upper Saddle River, N.J. **CIRCLE 268**



▼ All about engineered wood

An interactive CD-ROM course teaches use of the building products in high-wind and seismic regions, as well as manufacturing and general application. In five hour-long modules, 10 CES learning units can be earned by AIA members. 206/565-6600. APA-Engineered Wood Association, Tacoma, Wash. **CIRCLE 269**





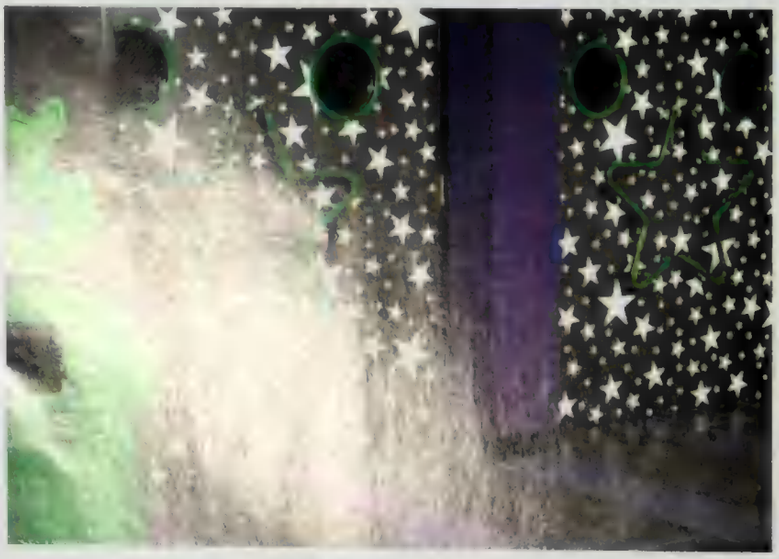
▲ Shine-free

Low-gloss finish transforms ordinary vinyl siding into a natural painted wood appearance. Compared to regular siding, the new Platinum, treated with the Duratron formula, is said to have less shine than other vinyl and aluminum sidings. 800/952-9226. Kaycan, St. Laurent, Que. **CIRCLE 270**

▼ Homey heavy-traffic floor

Meeting the need for cozier institutional settings, the CustomSpec II line of sheet vinyl expanded to include three new patterns and twelve colors. The new designs are said to look residential yet functional. 609/935-3000. Mannington Commercial, Salem, N.J. **CIRCLE 272**





◄ More than movie stars

Cinemark Theaters decorated their Houston movie-theater doors in a star-studded laminate. The creator, Pam Taylor, used a custom laminate process as an alternative to paint. Two pieces of paper overlaying one another and covered in laminate achieved the starry look. With a cutout stenciled design, the top sheet creates the pattern and, in this case, the charcoal surrounding the stars. The lower sheet provides the contrasting white of the stars. 800/433-3222. Wilsonart Custom Laminate, Temple, Tex. **CIRCLE 271**

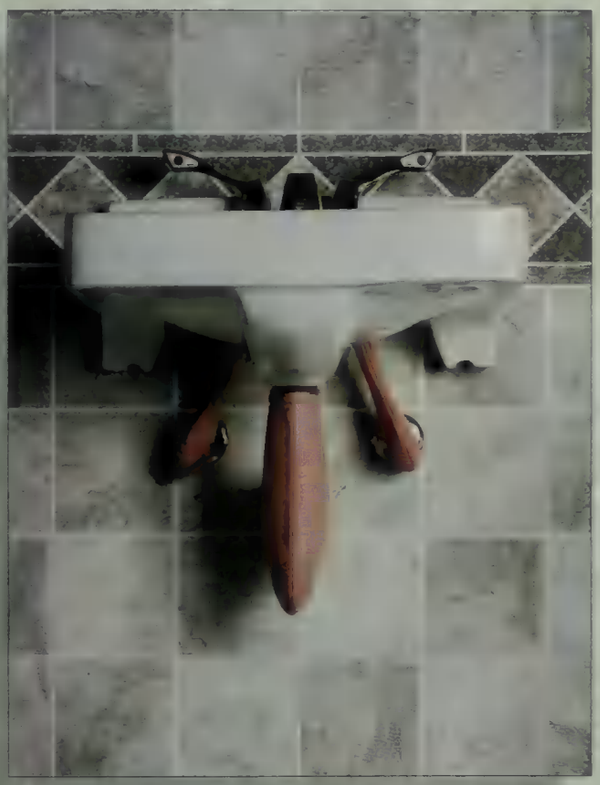
▼ Concrete: not just for streets

Breaking with tradition, concrete sinks, tables, countertops, and fireplaces enter the realm of custom interior design. Casts containing colored glass and hardware add variety to the multitude of colors available. 914/452-3988. Get Real Surfaces, Poughkeepsie, N.Y. **CIRCLE 273**



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PRODUCTBRIEFS



▲ Comforting lounge

Designed by Spanish architect J. L. Perez Ortega, the Flavia lounge is made with molded-foam cushioning that hugs the body; meets all ANSI and BIFMA contract performance criteria. Kron USA, Pompano Beach, Fla. **CIRCLE 274**



▲ Flight delays

Created by KI's own design team, GateOne seating can withstand high-traffic airport use while providing long-term comfort (though it can't alleviate boredom). Built on a steel-beam frame, the moderately priced piece can be specified for two to five users, as well as with in-line or corner tables. 800/424-2432. KI, Green Bay, Wis. **CIRCLE 275**

► Dynamic sitting

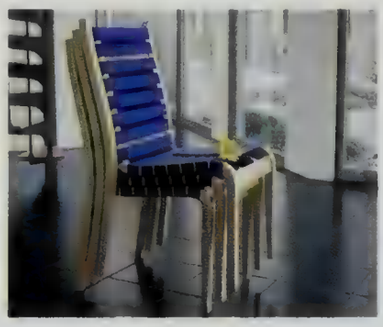
A new office/task line, Xerra features a dynamic-synchronic mechanism said to let the chair adjust automatically to the user's weight and body motions: you lean back, it leans back. Models include a sled-based pull-up chair, a fully adjustable armchair, and a task seat with Xerra's signature keyhole-perforated molded-polymer back. 800/849-0545. Girsberger, Smithfield, N.C. **CIRCLE 276**



▼ Rock and roll

Designed by the California firm 5D to "stimulate" office workers, the Taz chair has a cutout helix pattern on the seat back said to create a suspension-like ergonomic support. The chair can flex left and right as well as forward and back: stay alert! 800/344-2600. Haworth, Inc., Holland, Mich. **CIRCLE 277**





▲ Ecological

The Gotham chair, designed by Peter Danko, uses a flexible webbing of extremely rugged automobile seat-belt material in lieu of foam cushioning that might off-gas. The frame is constructed of laminated maple veneer, in a stacking version, as shown, as well as a side-chair model and an armchair. Though black is the standard, the seat-belt webbing comes in many bright colors; frame can be specified in five wood tones and eight stain colors. 800/882-5300. Danko, Division of Persing Enterprises, Inc., Red Lion, Pa. **CIRCLE 278**

▼ Basic ergonomics

Made by a German furniture manufacturer with three factories in North America, Cosmos is a new ergonomic office chair said to offer "elegant" design at a competitive price. The seatback can be molded (pictured) or made of fabric stretched over a tubular frame. 800/631-1186. Dauphin, Boonton, N.J. **CIRCLE 280**





◄ Way down east

This Maine firm has used its hardwood-expertise to produce comfortable, lightweight chairs that meet the price and performance requirements of the contract-furniture market. The Maine Counties Collection is made up of four designs offered in configurations and finishes appropriate for library and corporate use. Each of the four chairs, named Oxford, Franklin, Lincoln (pictured), and Hancock, have common elements that can be transferred—an Oxford seat platform with Lincoln arms, for example—creating 64 possible appearance variations. A spec guide gives wood-finish options and prices. 800/708-9710. Thos. Moser, Auburn, Me. **CIRCLE 279**

▼ Clean and trim

A stacking armchair suitable for residential use as well as institutional applications, Corpus has a seat, back, and (optional) arms cut and pressed from a single laminated shell of beech or birch. ICF Group, Norwood, N.J. **CIRCLE 281** ■



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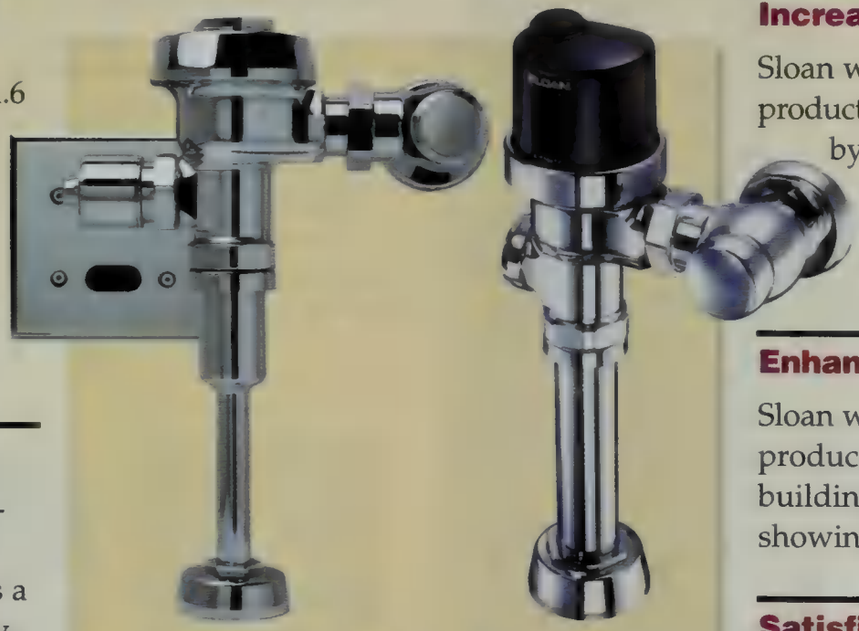


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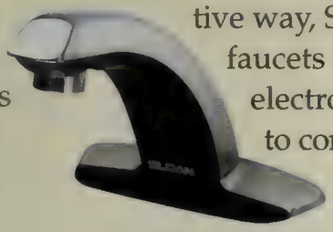


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PRODUCTLITERATURE

Computer ergonomics

A 34-page brochure addresses the health and well-being of computer users, describing keyboards, adjustable monitor supports, and other task accessories that reflect 10 years of research on the interaction of humans and VDT equipment. All components are shown in dimensioned drawings; price list accompanies the catalog. 860/282-9767. Ergo Systems, Inc., East Hartford, Conn. **CIRCLE 282**

Articulating-arm seating

Fact sheets demonstrate how Omnific ergonomic office chairs let users raise or lower the chair's arms for increased mobility or preferred working comfort. Other features include swivel/tilt control options, a range of dimension choices for different body types, and flexible support provided by a molded-urethane chair shell. 714/433-3385. Panel Concepts, Inc., Santa Ana, Calif. **CIRCLE 283**

Interactive desking

A booklet explains Biomorph's furniture-design ideas, described as a unique solution for computer users in all fields. Based on a crescent-shaped work surface, the furniture provides a range of flexible positioning options for each user. The firm will custom-design a workstation without charge; layout possibilities are shown at www.biomorph-desk.com (Web page). I.D/Design, New York City. **CIRCLE 284**

Hardwood contract furniture

A new, binder-format source guide for architects, interior designers, school and hospital administrators, and other specifiers of contract furniture illustrates Vermont-made casegoods, seating, tables, and other pieces made of solid birch, oak, maple, cherry, and walnut. Recent contract customers are listed for reference. 800/841-6671. Pompanoosuc Mills Corp., East Thetford, Vt. **CIRCLE 285**

Roll them out

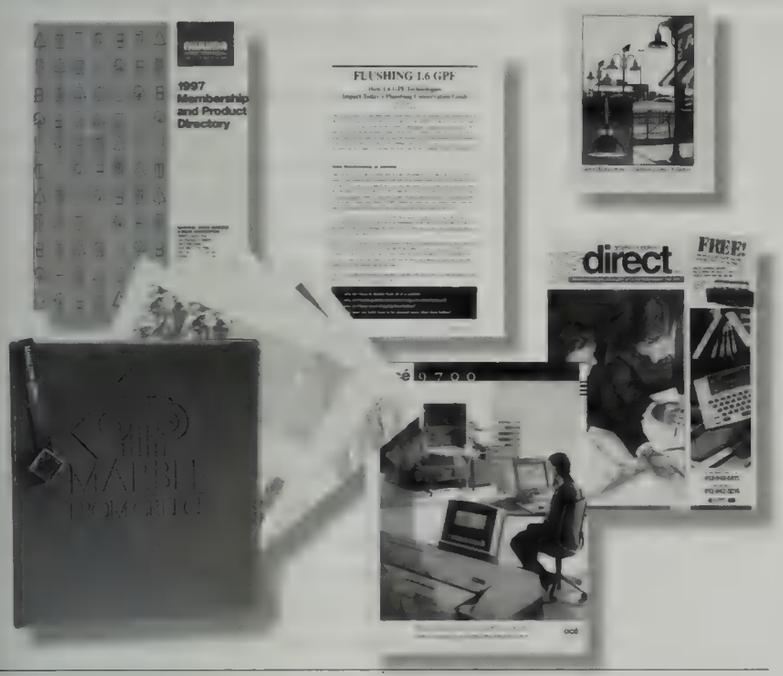
Individual cut sheets illustrate wheeled furniture—computer desks, file carts, display boards—said to promote effective teaming and spontaneous communication. Built expressly to be on the move, product features include large casters, easy-to-steer handles, top-opening files, impact bumpers, and contemporary colors. 800/263-2387. Egan Visual, Woodbridge, Ont. **CIRCLE 286**

Demountable wall system

An architectural binder holds case-study photography of recent SMED installations, showing how the partitions are able to integrate wiring distribution, workstation support, and storage equipment into site-specific interiors for medical facilities, schools, law offices, and similar corporate environments. Layout information and product descriptions are available in electronic format. 403/279-1400. SMED International, Calgary, Alta. **CIRCLE 287**



PRODUCTLITERATURE



Window and door guide

The 1997 Membership Directory of the National Wood Window & Door Association lists sources for residential and architectural applications, and includes a selection guide to windows and doors offered by each firm. National Wood Window & Door Association, Des Plaines, Ill. **CIRCLE 288**

Marble "swatch" book

Promotional items offered without charge to architects and other stone specifiers include a binder presentation of all 64 varieties of Greek marble currently quarried. High-quality photographs are printed on perforated sheets for easy removal for presentations. A trio of 8-in.-wide by 36-in.-high posters illustrates stones grouped by color family: whites, earth tones, and greens. Fax letterhead requests to 312/332-5127. Greek Trade Commission, Chicago. **CIRCLE 289**

Low-flush and water savings

Prepared for architects and other building professionals, a "white paper" describes how 1.6 gallon-per-flush technologies are impacting water-conservation goals nationwide. It compares gravity- and pressure-toilet types, with survey and test data on low-consumption performance and user-satisfaction levels. It also explains the advantages of each technology, and provides a checklist to help evaluate the needs of a particular facility. Single copies available free; fax 847/671-6944. Sloan Valve Co., Franklin Park, Ill. **CIRCLE 290**

Digital reprographics

A printer/copier/scanner unit for high-volume (six E-size copies per minute) applications, the Océ 9700 is detailed in a four-page brochure. Said to achieve fast printing of even the most complex CAD/EDMS files, the multiple-function device works in most industry-standard emulation modes. Scan-mode features include file-size optimization, said to combine excellent image quality with significant savings in file sizes. 773/714-8500. Océ-USA, Inc., Chicago. **CIRCLE 291**

Colorful light fixtures

RLM reflectors, mounting arms, poles, and hanging accessories are included in a fixture catalog. Suggested for merchandising and hospitality spaces, lights can be specified in any of dozens of glossy, industrial powder-coat finish colors. 216/851-3300. Spero Electric Corp., Cleveland. **CIRCLE 292**

Graphics supplies

A 52-page product catalog includes items such as plotters and media, technical instruments, graphics workstations, and specialized storage equipment. All products are fully described, and are said to be offered at a significant discount from the manufacturers' suggested list price. 800/234-3729. GS Direct, Inc., Bloomington, Minn. **CIRCLE 293** ■

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CIRCLE 70 ON INQUIRY CARD

(continued from page 48)

Competitions

To increase public awareness of design excellence, the Chicago Athenaeum: Museum of Architecture and Design invites designers and manufacturers to submit industrial and graphic design projects, including office furniture, housewares, and lighting, to **Good Design® 1997.** The deadline for this international competition is July 1. Winning submissions will be exhibited at the museum this fall and installed in the permanent collection. Entry forms are available from the Athenaeum at tel. 312/251-0175, fax 312/251-0176, or by visiting http://www.chi-athenaeum.org/.

Toward a More Perfect Union: An International Design Competition for the Future of Union Square "aims to generate innovative urban design concepts that are inviting to a wide range of users and that will make Union Square the renewed focal point for San Francisco's retail core." The jury will award $10,000 in prizes, and the City of San Francisco, which intends to renovate the square, will interview the winners for retention as part of a design team. The deadline for submissions is July 7. Send requests for entry by June 6 to The San Francisco Prize, c/o SPUR, 312 Sutter Street, Suite 500, San Francisco, Calif. 94108 (include a check for $20 payable to San Francisco Prize). For technical information contact Evan Rose, Competition Project Manager, San Francisco Planning Department, at tel. 415/558-6291, fax 415/558-6426, or E-mail Evan_Rose@ci.sf.ca.us.

The Center for Health Design has announced two design programs. **The Healthcare Design Competition** recognizes built or unbuilt projects/ideas that propose innovative design solutions for healthcare delivery; students, professionals, and educators may enter projects by September 19. Architects, interior designers, and healthcare executives may enter remodeling or new construction projects occupied by June [illegible] **Healthcare Environments Awards**, a [illegible] with a demon- [illegible] clients and design [illegible] improving the [illegible] deadline is July [illegible] Debra J. [illegible] Design, [illegible]

The [illegible] announ[illegible] competition for the **Lawrence B. Anderson Award**. The $12,500 award is given in "support of creative documentation as a valuable form of learning." Eligibility requirements include a professional-level degree and/or a recognized contribution to the built environment and full-time residence at the school for a two-year period. The application deadline is July 31. For information, contact Office of the Dean, School of Architecture and Planning, MIT, 77 Massachusetts Avenue, Cambridge, Mass. 02139, tel. 617/253-4401, fax 617/253-9417, E-mail peggym@mit.edu.

The Boston Society of Architects invites entries in **Unbuilt Architecture**, an annual program open to practitioners, educators, and students. Submissions are due August 21. Submit entries to the attention of the program at Boston Society of Architects, 52 Broad Street., Boston, Mass. 02109-4301. Call 617/951-1433, ext. 232.

The **Shinkenchiku Residential Design Competition 1997**, an annual competition sponsored by *The Japan Architect*, will be judged by Swiss architect Jacques Herzog. The theme is "House of Collaboration." Entrants are asked to work in collaboration with an artist or art student to draw an exhibition space for contemporary art for any site. Use two sheets of paper; no electronic media. For entry requirements contact Tomoko Ochiai, Editor, *The Japan Architect*, at fax 8133/811-0243. Entries must be received by September 10.

The Urban Studies and Architecture Institute has launched an international ideas competition for ferry terminal buildings in Manhattan, Brooklyn, and Queens, connecting with La Guardia Airport; the competition is unrelated to the terminal for the Staten Island Ferry. **The Fluid City/Point by Point: Ferry Stations, New York** may be entered by practitioners who completed their terminal degree within the last ten years, as well as to architecture, urban design, landscape, and interior design students. Registration forms and fees are due September 15; entries are due January 15, 1998. Contact Urban Studies and Architecture Institute, 10 West 15th Street, Suite 1126, New York, N.Y. 10011-6826. Call 212/727-2157, fax 212/727-2159, or E-mail Ldusainst@gnn.com.

Reviews

Pavilions of Plenty: Exhibiting American Culture Abroad in the 1950s, *by Robert H. Haddow. Washington, DC: Smithsonian Institution Press, 1997, 272 pages, $37.*

Space Calculated in Seconds: The Philips Pavilion, Le Corbusier, Edgard Varèse, *by Marc Treib. Princeton, N.J.: Princeton University Press, 1997, 312 pages, $50.*

Reviewed by Clifford Pearson

The flip side of America's Cold War policy of military containment of the Soviet Union was a cultural offensive that used World's Fairs and trade fairs as important staging grounds, argues Robert Haddow in *Pavilions of Plenty*. The idea was to export the American vision of material plenty to countries in Eastern Europe and Asia that were teetering on the edge of being Soviet satellites. Using refrigerators, blue jeans, canned goods, and prefabricated homes as weapons in this propaganda war, federal agencies such as the Commerce Department and the U.S. Information Agency teamed up with major corporations—including IBM, General Mills, and Walt Disney—to present alluring images of a victorious capitalism.

This fascinating book examines the role of architecture and exhibit design in communicating this message, including accounts of Buckminster Fuller's geodesic dome at a trade fair in Kabul, Afghanistan, in 1956 and Edward Durell Stone's American Pavilion at the 1958 Brussels World's Fair. Haddow, an art historian from Minneapolis, focuses our attention on an intriguing chapter of American history, but his book needs more and better photographs.

A completely different take on World's Fair architecture is provided by Marc Treib in *Space Calculated in Seconds*, which recreates in words and images a nearly forgotten building by Le Corbusier. Because it was a temporary structure and stayed up for only eight months, the pavilion for the Philips Company at the 1958 Brussels World's Fair is one of the architect's least known projects.

A multimedia collaboration between Le Corbusier, composer Edgard Varèse, filmmaker Philippe Agostini, graphic designer Jean Petit, and composer/architect Iannis Xenakis, the pavilion was a demonstration of Philips's latest sound and image technology in the service of the arts. The building was an eccentric structure made of poured-concrete ribs and precast panels forming hyperbolic paraboloid shells. Rather than being an event unto itself, the architecture was an integral part of a walk-through experience that included a 480-second film and Varèse's musical piece *Poème électronique*.

As Treib explains, ". . .the Philips Pavilion, with its spectacle of amplified sound and rhythmically orchestrated light and color, was a landmark in electronic media technology that

concomitantly tested the limits of architecture, both concrete and virtual."

Fair Housing Act Design Manual, *designed and developed by Barrier Free Environments. Washington, DC: U.S. Department of Housing and Urban Development's Office of Fair Housing and Equal Opportunity and Office of Housing, 1996, $10.*

This straightforward manual assists designers, builders, and developers in conforming to the Fair Housing Amendments Act of 1988, which expands Title VIII of the Civil Rights Act of 1968 and prohibits discriminatory housing practices based on disability and familial status. It clarifies design requirements and provides detailed drawings to illustrate the application of Fair Housing Accessibility Guidelines regarding multifamily housing projects. An illustrated list of product resources and selected references, full text of the guidelines, and responses to commonly asked questions supplement the manual. A handy resource, the manual is not meant as the final word on compliance: The author's disclaimer states that some portions of the manual "may conflict with current and/or former HUD regulations."

Omissions and Corrections

The article on the restoration of Frank Lloyd Wright's Wingspread [RECORD, March 1997, pages 80–83] should have acknowledged the contributions of Bentley & Son (Tom Bentley, president; Robert Stelter, contractor, and Kevin Higgs, project superintendent).

In "Saving the Soul of Architectural Education" [RECORD, May 1997, pages 124–30] a list of NAAB candidate schools misstated the name of the Philadelphia College of Textiles and Science. A list of schools accredited by the Canadian Architectural Accrediting Board should have included the following institutions:

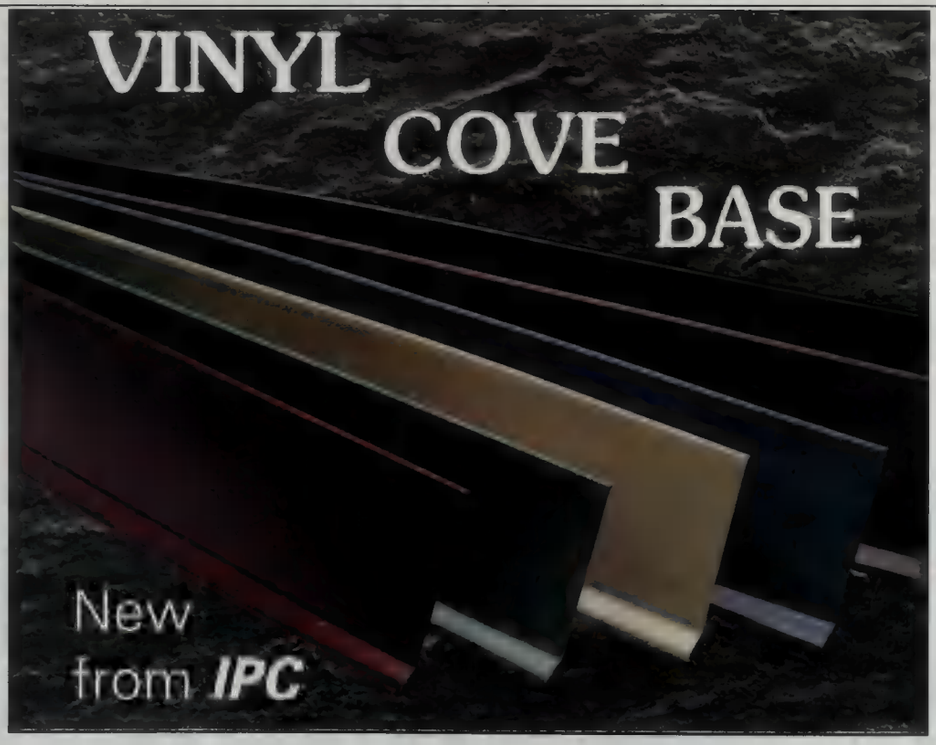
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(Letters, continued from page 18)
architects at every level to be more active in the leadership of their communities. As student leaders, we clearly would support this and would also suggest that community involvement needs to happen consistently throughout our lives.

At best, the path to licensure in most states now places a premium on longer hours of work behind the closed doors of an architecture office, rather than encouraging any "service to the nation." At worst, it discourages young people from even trying to enter what one AIA board member continues to remind us is a wonderful profession.
–Raymond H. Dehn, President
Casius H. Pealer, Vice-President
American Institute of Architecture Students, Washington, D.C.

Continuing education criticism
I am disappointed to see what the AIA's continuing education system has become. Apparently, it is possible to read an infomercial in ARCHITECTURAL RECORD and receive learning units.

To earn my units, I took rigorous all-day technical seminars. Most of the architects I know keep up on new developments; a mandatory continuing education system seemed to be a way to raise the public's respect for our profession, which, for the last 40 years or so, has been losing respect (and fees). The purpose of a continuing education system isn't to educate—we can take classes on our own. The purpose is to prove to the public and the government that we are worthy of professional respect. If the system is slightly flawed, it quickly loses all credibility.

The joke we have going with RECORD makes us look not only ridiculous but dishonest because it involves advertisers. What can we do to change this situation?
–William Fisher, AIA
Santa Cruz, Calif.

The AIA responds: We appreciate your comments on ARCHITECTURAL RECORD's education series. Each month, the editors of RECORD and AIA officials target a topic for extra exploration and educational content. More than 5,000 report forms have been submitted for CES credit via RECORD. The magazine is an important communications vehicle that reaches more than 100,000 design professionals; it is an ideal forum in which to offer education on key technical and practice developments. Realizing the usefulness of the articles, some manufacturers and trade organizations have offered their expertise and research findings through the program. The AIA works closely with these vendors to ensure that the material is educational and not promotional. Like public radio sponsorship, each article may start or end with a brief note telling who provided the information. The AIA sets the educational standards for the articles and works with the authors to develop concrete learning objectives and questions and answers, all written from the architect's perspective.

AIA Gold Medal: a vote for collaborative efforts
I wish to add my support to Robert Ivy's call for modifications to the policy of the AIA board regarding the Gold Medal [RECORD, May 1997, page 29]. To reassess the position of the board is both fitting and extremely important, because of the significance of the message that the board is sending. The board may not agree, but the current stance suggests that collaborative genius does not and should not merit consideration for the highest recognition of the profession. Taking that argument further, the AIA's position suggests that collaboration cannot achieve the level of excellence required to receive a Gold Medal and, therefore, is not worthy of such distinction. The institute presents the notion that only individual ability can achieve an architecture of significance.

Such a message, in my opin-



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ion, severely damages both the profession and its relationship to the public. It suggests to the profession that collaboration stands at a lower level than individual design brilliance. It suggests to the public that collaboration is not the way lasting architecture can be achieved. The firm award, which recognizes an entire firm and their collaborative efforts, notwithstanding, the AIA indirectly promotes the notion that a single isolated architect can produce superior architecture better than those who work together.

I would hope that the board considers revising the conditions for awarding the Gold Medal to more appropriately reward and foster careful collaboration between two or more extraordinary individuals who contribute to the advancement of architectural excellence.

–Charles E. Dagit, Jr., FAIA
Dagit▪Saylor Architects,
Philadelphia

Architect of record

I'm still making my way through your marvelous April 1997 issue. I'm neither an architect nor a contractor, as you should be able to tell from my question: What is the difference between and the responsibilities of the "architect" and the "architect of record," both of which are listed for some projects but not others?

–Alfred J. Bruey
Jackson, Miss.

According to the AIA, the "architect" is a professional licensed by a state regulatory body to provide architectural services. The AIA has not adopted a definition for the term "architect of record." The term is probably derived from an analogous term in the legal profession. In the architectural profession, its meaning is imprecise and may change with the context in which it is used.

Anti-urban agenda of casinos

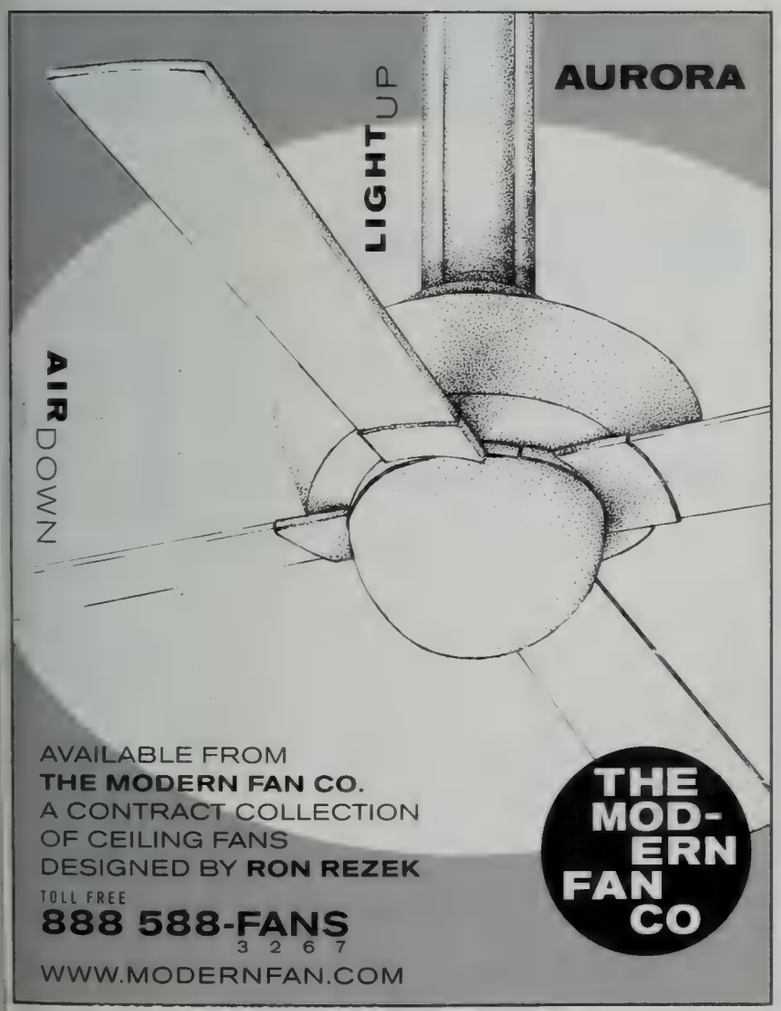
Reading your article on the New York-New York casino [RECORD, March 1997, pages 76–79], I was surprised to discover that Las Vegas has become the paradigm of modern public space in America. Author Alan Hess bases his premise on three assumptions: 1) the entertainment complex has become "the engine and the anchor for suburban and urban development"; 2) theming is a legitimate and multivalent approach to architecture; 3) self-contained private development is a productive contributor to the public space of a city. Hess bases his argument on observations of the Strip—Las Vegas Boulevard, from Sahara Avenue to Tropicana Avenue.

While the casino, as Hess observes, casts an outwardly dynamic and identifiably thematic image, this image masks an entirely private and antiurban agenda. Essentially, the purpose of the casino exterior is to entice people out of the public realm of the street into an environment that is proprietary and ostensibly complete. The internal streetscapes of casinos, therefore, should not be seen as developments of public space but efforts to supplant it.

From the article, the definition of "public space" could be understood to mean any space that is inhabited by individuals who are not employed by its owner. In focusing on the Strip, however, the public discussed in the article is actually the tourist, who views public space as a source of entertainment. The tourist is drawn to the unique and the unusual, but the public is drawn to the common and the useful. To the permanent resident, the Strip is as much an area outside the norms of urban form as it is to the visitor.

This is not to say that architecture in Las Vegas is not at the forefront in the development of public space. Hess might have been better served had he compared the developing common architecture of the Las Vegas Valley to the seductive imagery of the Strip.

–Kevin Kemner
Tate & Snyder Architects,
Henderson, Nev.



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AIA/ARCHITECTURAL RECORD CONTINUING EDUCATION

INSTRUCTIONS:

◆ Read the article "Color in Architectural Concrete" (pages 161–66), using the learning objectives provided to focus your study.

◆ Complete the questions below, then check your answers (top of page 202).

◆ Fill out the self-report form on page 202 and submit it to receive two AIA Learning Units.

—Mark Scher, AIA Director of Continuing Education Programs and Products

Questions:

1. List seven reasons why designers are specifying colored concrete.
Answer 1.

2. Summarize the life-cycle-cost considerations of using colored concrete.
Answer 2.

3. Briefly identify five colorizing techniques for concrete.
Answer 3.

4. Discuss the scheduling considerations relevant to field verification of concrete color for a large project.
Answer 4.

5. How does adding water affect colored concrete?
Answer 5.

6. List at least seven important considerations for specifying with regard to pigments, mix design, and efflorescence.
Answer 6.

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ANSWERS:

◆ Answers refer to the the article "Color in Architectural Concrete" (pages 161–66), using the learning objectives provided to focus your study.

◆ To receive CES credits, fill in the self-report form below.

Answers

1. Today colored-concrete specification is on the upswing because:
It satisfies a desire for richer surface treatments.
There is an increasing variety of pattern-stamped and embossed concrete flatwork, which is usually colored.
More skilled finishers are available.
It provides an alternative to more expensive finishes.
It is a durable material.
It is very adaptable as a unifying design medium for exteriors, landscapes, and interiors.
It is an environmentally safe material.

2. Coloration adds between .75 and $2 psf to the work cost. Extra installation costs are minimal because techniques are the same as for uncolored cement. Colored concrete is very durable over time, minimizing maintenance costs.

3. At the most basic level, hue and shade are determined by the mixture of the sand, aggregate, and portland cement. A second technique involves exposing an aggregate through sandblasting, mechanical, or chemical means, or seeding an aggregate onto a surface or form. The most widely used method is to add color additives into the concrete mix. Dust-on coloring approaches are possible for coloring slabs and paving. Finally, staining concrete through solvent-borne pigments or dyes and chemical treatments for etching are gaining in popularity for coloring existing concrete.

4. It is recommended that you specify a mock-up replicating the materials, placement, and finishing techniques that will be used in the field. Allow at least one month before the start of construction.

5. Changes in the water-to-cement ratio of concrete can affect the appearance of integrally colored concrete. If additional workability is required, use a water-reducing admixture instead of adding water.

6. All colorants should comply with ASTM C979. Carbon blacks are less expensive than black-iron oxide but can't be used in air-entrained cement. Consult with manufacturers on pigment types and dosage rate for shades and hues. Colorant should not exceed 10 percent of cement content weight. Consistency requires single sourcing, uniform color, and constant proportions. In most cases, maintain a 5-in. maximum slump. If project is in a freeze-thaw area, specify a 5 to 7 percent air-content range. Powdery deposits can be reduced by specifying a low water-to-cement ratio, using curing compound, and designing the mix for less permeability.

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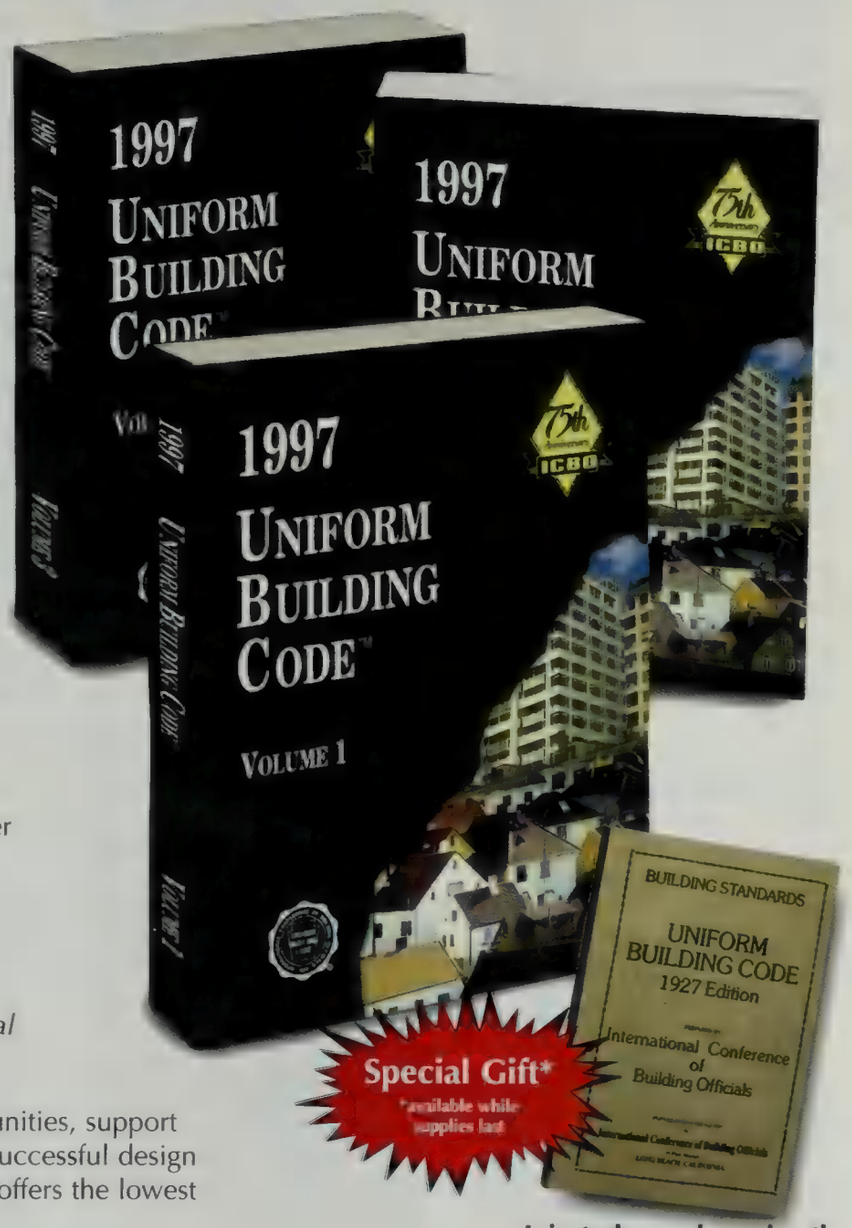
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42-43	*28*	Canam Hambro
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		mpany
203		
19V		

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209-213		Manufacturer's Spotlight
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50-51	*29*	Marvin Windows & Doors
167	*57*	McNichols Company
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81-83	*42*	Oce USA
6-7	*4*	Office Specialty
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8-9	*5*	Prescolite
35	*19*	Prince St. Technologies
157	*54*	Raco Altura
84	*43*	Raynor
167	*58*	R.C.A. Rubber Company
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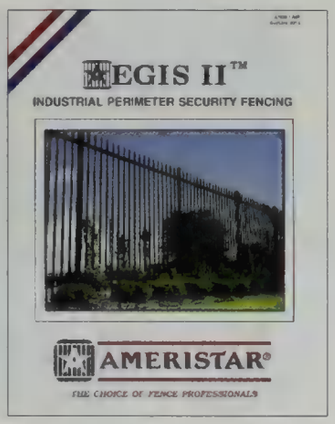


44-pg color "Idea Book" featuring a collection of column projects from classic to contemporary for interiors & exteriors. Includes Columns Product Portfolio. $10 + $3 p/h from the column co. selected #1 by Professional Builder Readers. Product Portfolio $5. Wood, fiberglass, polyester, E.P.S., & stone, round, square, octagonal w/ plain or fluted shafts. Job site del., worldwide shipping. 1.800.COLUMNS-1.800.265-8667.

Chadsworth's Columns

CIRCLE 101 ON INQUIRY CARD

AEGIS II

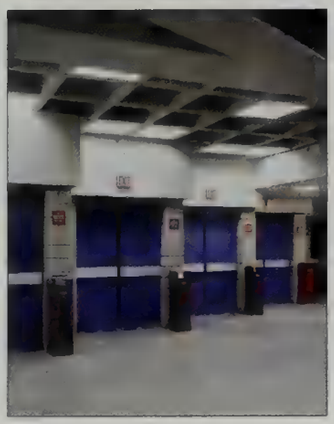


Aegis ornamental fence systems feature strong Forerunner™ rails, internal retaining rods, & designed panel brackets. Aegis II industrial fence offers the strongest security fence avail. Aegis is specified by more architects & builders than any other on the market. Industrial & residential brochures incl. data on structure, design & options. Easy shipping panel design. (800)321-8724. POB 581000, Tulsa, OK 74158-1000 F(918) 835-0899.

Ameristar

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Total Door®: The Openings® Solution



Total Door® is a fire rated door assembly that includes all hardware. Pairs do not require coordinators, vertical rods, astragals, flush bolts or floor strikes. Will retrofit to any frame. Meets all codes and ADA. Wood and metal faces available to 3 hours. Lifetime limited warranty on locks and panics.

Openings®

CIRCLE 103 ON INQUIRY CARD

Concrete Waterproofing by Crystallization



Applied as a slurry coating Xypex is a chemical treatment that waterproofs by penetrating the concrete with a crystalline formation that "plugs" the pores of the structure preventing water seepage. Xypex is ideal for use on the "inside" of wet underground structures.

Xypex Chemical Co.

CIRCLE 104 ON INQUIRY CARD

Introducing the New Alpha Collection



With 24 patterns to choose from, ranging from the most basic vandal resistant Textures (shown above), to innovative Standards & our new Ultra Series. All patterns come in standard sheet sizes with border to border decorations, using distinctive finishes on a variety of metal surfaces for elevators doors & interiors, wall panels, column covers, and trim. Call (800) 537-1127, Fax: (305) 696-4064.

Surface Design

CIRCLE 105 ON INQUIRY CARD

12 New Products Featured in 1997 Catalog



12 new products are introduced in Strong-Tie's '97 catalog, Wood Construction Connectors. A necessary reference for structural engrs, building officials, & architects, it includes updated specs, load charts, application drawings, & building code acceptance - plus info on holdown anchorage design, & avail. custom hanger options. ISO9001 Reg. For 1997 catalog (C-97), write POB 10789, Pleasanton, CA 94588

Simpson Strong-Tie

CIRCLE 106 ON INQUIRY CARD

Accessible Lavatory Insulation



A full color catalog will explain the different Handy-Shield safety covers offered for the new or retrofit projects that need to comply with the American Disabilities Act. The specific use, sample specifications, drawings and color choice are all summarized in this easy to understand catalog. 800-475-8629.

Plumberex

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New Fireplace Tested as a Wall Furnace



Our products have taken direct-vent technology & incorporated it into a new high performance fireplace.Model 6000 Supreme is a high efficiency fireplace (thermal efficiency up to 74%) & has an AFUE (Annual Fuel Utilization Efficiency) rating of 63%. The 6000 Supreme is standard with a variable regulator to adjust the flame & BTU input with the turn of a dial. Heat-N-Glo, 6665 West Hwy 13, Savage, MN 55378, 1-800-669-HEAT.

Heat-N-Glo

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Atlas Door™ Electronic Specs

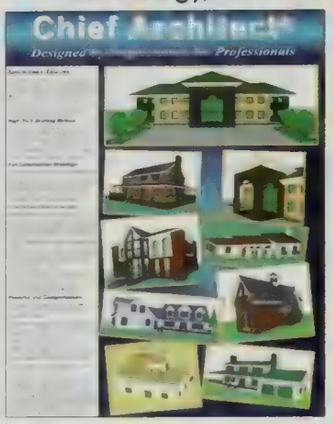


Atlas Door™, the leading manufacturer of heavy duty rolling steel doors, grilles, counter shutters & fire doors now offers 3 part CSI electronic specifications. Specs are available on their internet site at http://www.clo pay.com or http://www. arcat.com at specdisk under Atlas Door™ or call 800-959-9559. Atlas Door™ is a brand of Clopay Building Products Company.

Clopay Building Products

CIRCLE 109 ON INQUIRY CARD

Advanced Relational Technology, Inc.

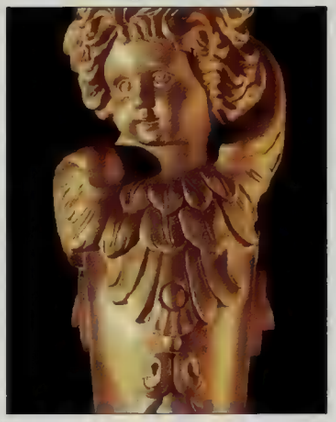


Proves that top quality architectural software can be easy to learn. Straight out of the box, Chief simplifies the process of creating full working drawings. Over 300,000 people worldwide prefer ART's architectural software with its full 3-D capabilities. Advanced Relational Technology, Inc. 3731 N. Ramsey Rd, Suite 150, Coeur d'Alene, ID 83814. T. (800) 482-4433, F. (208) 664-1316 E-mail: artchief@chiefarch.com WWW: www.chiefarch.com

ART

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Raymond Enkeboll Designs © 1996



Crafts an extensive array of Architectural Elements carved in solid woods. 104 pg. catalog shows a selection of capitals, corbels, moldings, onlays, panels, etc. Stocked in Maple and Red Oak, avail. for immediate delivery. Spiral Bound catalog $20.00, Special binder version $30.00. Visa & MC welcome. Brochure Available Raymond Enkeboll Designs, 16506 Avalon Blvd. AR67, Carson, CA 90746. T: (310) 532-1400 F: (310) 532-2042.

Raymond Enkeboll

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Buckingham-Virginia Slate



has been sheltering America for over two centuries. As a roofing material, it is prized for its high mica content, natural cleft and texture, as well as its non-fading and distinctive handmade quality. Because of it's permanence and natural beauty, it was specified by Thomas Jefferson in the 1800's and remains today the roofing choice of eminent architects. P.O. Box 8, Arvonia, VA 23004. Tel: 1-800-235-8921.

Buckingham-VA Slate

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Mortar Net Green



is placed on top of the flashing inside the cavity where it collects and permanently suspends mortar droppings above the level of the weep holes to prevent clogging and allow them to exit the wall.

Mortar Net

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For maximum impact and appeal, crown your work with a signature art piece from Brickstone Studios. Applications of brick or cast stone sculpture are unlimited - exterior and interior murals designed to bring architectural focus to entrances, foyers, facades and fireplacework. Quality craftsmanship and design are distinguishing services our company guarantees. 800-449-

Brickstone Studios

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America's Indoor-Outdoor Ceramic Tile®. Metropolitan quarry is the floor covering of choice for demanding applications. Avail. in 3 sizes & a number of blendable colors, for a variety of pattern options. Metropolitan is ideal for installations where there can be no compromise of looks or durability. Metropolitan offers a compete line of trim including barrier free components. For our catalog Call 1-800-325-3945.

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Invisible Structures, Inc.

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Glass Block Panel Systems

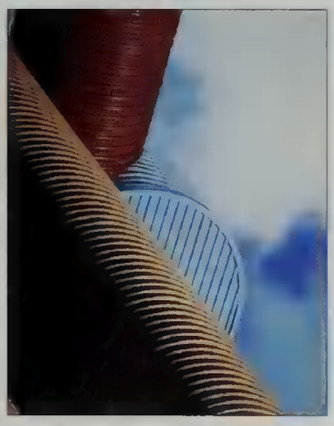


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Circle Redmont, Inc.

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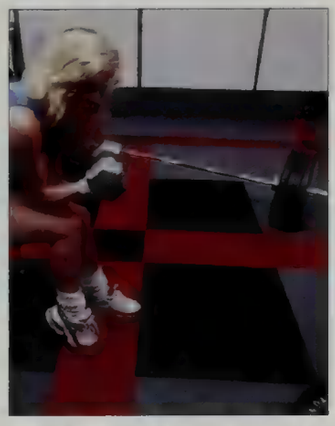


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Tuflex Rubber Flooring

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Automatic Door Bottoms w/ Nylon Brush Seals

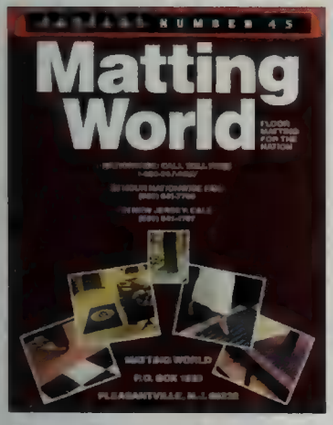


Pemko nylon brush conforms extremely well to the contours of any sealing surface, particularly carpet. Nylon filaments penetrate carpet fibers to seal off light, drafts, sound, and insects. These ADB's are fire and smoke labeled, tested for sound, and operate with very low closing force. Full-surface, semi-mortise, and full-mortise models available.

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The nation's most complete line of floor matting: Identification Logo Mats, Entrance Mats, Anti Fatigue Mats, Food Service Area Mats, Rubber & Vinyl Long Runners, Carpet Top, Anti Static, Chair Mats, Factory Mats, Deck Matting. A mat for just about every application. For a catalog, Fax (609) 641-7766 or write Matting World, P.O.B. 1333, Pleasantville, N.J. 08232.

Matting World

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Security Mesh sheets are steel mesh panels used as a penetration resistance shield behind drywall finishes. Sheets are to be attached to metal studs & track or wood supports designed for use in walls. Uses: Prisons, gov't offices, strip malls, storage rooms, computer rooms, courthouses, apartments, condos, pharmacies, mail rooms, airport security, banks, hospitals, police stations & office security.

Amico

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Melton Classics, Inc.

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Parallel Design Partnership Limited



"ellen's brackets". an anodized-aluminum shelving system designed by M Ali Tayar. provides an elegant alternative to exist ing bracket-and-track systems. Cantilevered brackets come in two sizes, for shelves 3/4 or 3/8-in. thick and 10-in. deep. Wall-mounted tracks permit 1 1/2-in. adjustment of wood, glass or plexiglass shelves. For more info phone Prallel Design Tel: 212/989-4959 Fax: 212/989-4959.

Parallel Design

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Smith & Hawken
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While we staked our reputation on heirloom teak furniture, in our new catalog you'll find new materials and new profiles that will help expand design options in both residential and high traffic commercial settings. Please call for our free catalog of fine teak and metal furniture. (415) 389-8300. Code: lamag97.

Smith & Hawken

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Nanik Between-the-Glass Blinds by Springs Window Fashions, incorporated with windows from various manufacturers, provides a high quality, low maintenance product ideal for healthcare, educational and commercial applications. Contact us for OEM applications or for a window manufacturer/distributor in your area. Call us at Spec-Fax, (800) 327-9798.

Springs Window Fashions

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The highly polished granite sphere gently rotates on a thin layer of water. Water pumped up from below at 10 to 12 psi is all that is required to begin the ball's rotation. The fountains made to order, are available in a wide range of materials and colors. Quarry Line, Inc. Ph. 847-808-0477 Fax 847-808-0482

Quarry Line, Inc.

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IIDA Award Winner



Brian Kane developed a method of shrink-wrapping Xorel fabric over a injection molded, ridged urethane shell. The Xorel Chair offers comfort, high traffic durability, and self healing, cleanable upholstery. $550 list. For a brochure and local representative: 800-727-6770.

Carnegie

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Walls & Ceilings



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CIRCLE 130 ON INQUIRY CARD

Duraflake FR fire-rated
particleboard



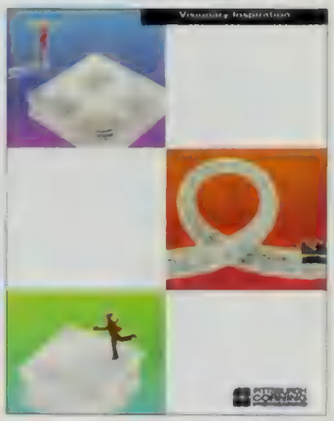
Duraflake FR provides Class A fire protection in wall systems, store fixtures, furniture and case goods. It has a UL flame spread rating of 20 and a smake developed rating of 25. Its smoothness, machinability and uniformity make it an ideal substrate. It even resists warping and won't leach chemicals. Call (541) 928-[illegible]

[illegible] Catalog 06300/WIL

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CIRCLE 130 ON INQUIRY CARD

Pittsburgh Corning
Glass Block

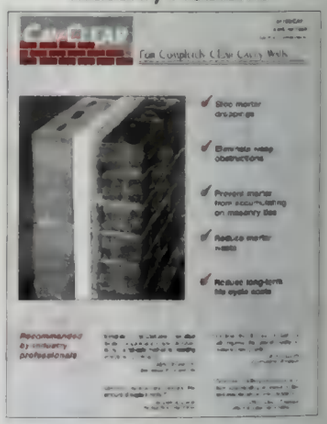


Inspired designs become reality with the new Premiere Series Glass Block from Pittsburgh Corning. Design curved walls, create a ripple effect or achieve complete privacy with our newest glass block designs. Shed new light on your most visionary inspirations with Pittsburgh Corning Glass Block. For a free brochure, call 1-800-992-5769.

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Cav/Clear Archovations

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Fence Systems

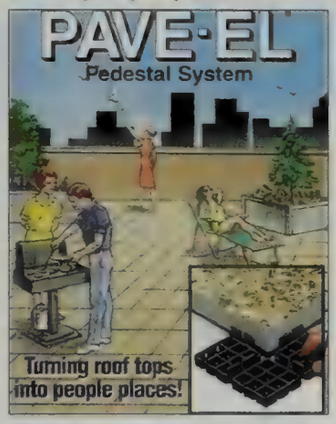


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Omega Fence Systems

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Monumental Iron Works

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Hadrian Inc.

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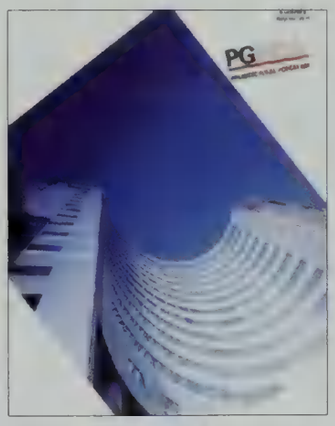


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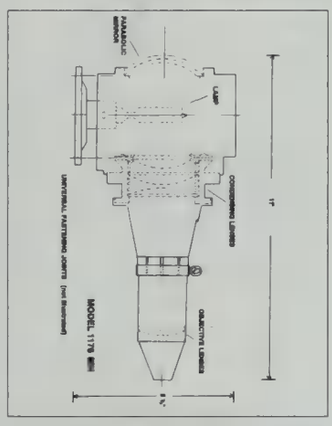


Flat, lightweight, durable composite panels; colored on both sides to incorporate a unique UV resistant surface which guarantees an excellent & stable color performance. The panels have unlimited color potential & have undergone chemical cross linking under high heat & pressure conditions which guarantees an excellent, robust panel with a minimum life expectancy of 40 years. Call 416-661-2351 ext. 235.

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Wendelighting

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IDC is an internationally recognized multidiscipline firm, providing facilities design and design/build services primarily to high technology and industrial clients. To meet our continuing growth, we are seeking Professionals Architects and Senior Designers to fill strategic career positions in our national offices (Albuquerque, NM; Austin, TX; Greenville, SC; Phoenix, AZ; Pittsburgh, PA; Portland, OR; San Jose, CA) and international offices (Dublin, Glasgow, and Singapore).

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Capital Improvement Program

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CIRCLE 79 ON INQUIRY CARD

The Construction Specifications Institute

THE FUTURE: The earth does a slow burn—the process of global climate change becomes ever more apparent.

BY BILL McKIBBEN

While visiting Costa Rica last month, President Clinton called (softly) for the reduction of greenhouse gases. He stated that "while there is some doubt about what increased greenhouse gas emissions are doing to the climate, no one doubts that they're changing the climate, and no one doubts that the potential consequences can be very profound and severe."

How profound and severe was recently documented by environmental activist Bill McKibben, in an Op-Ed article for The New York Times. *We are reprinting this view of the future to reach our readership of architectural and design professionals. From the smog-choked streets of Mexico City to the standstill traffic of Bangkok or Jakarta, human-generated pollution is creating a truly global problem. Architects must be part of the solution.—Joan F. Blatterman*



A massive traffic jam in Bangkok caused by a traffic-light snafu.

Global warming: Now we can see it for ourselves

We live on a new planet. That's what a string of recent scientific studies demonstrates. Because of global warming, caused by cars, factories, and burning forests, the earth is shifting beneath us with stunning speed and unpredictability. Consider:

- The number of "extreme precipitation events" (rainfall of more than two inches in 24 hours) on this continent has jumped 20 percent since the turn of the century, according to a study by the National Oceanic and Atmospheric Administration.
- Spring comes a week earlier in the Northern Hemisphere, according to the Scripps Institution of Oceanography, which used carbon dioxide records to document its finding.
- Vegetation has increased 10 percent above the 45th parallel, which crosses Seattle and Milan, since 1980, according to Boston University scientists who analyzed satellite data to track solar radiation.
- The northern tundra may have warmed enough that in some years it adds carbon to the atmosphere instead of soaking it up, George Kling, a biologist at the University of Michigan, Ann Arbor, reported last winter.

Understand this about these changes: They are enormous. They do not represent small shifts at the margin, the slow evolution that has always occurred on earth. Spring a week earlier; 20 percent more storms, 10 percent more vegetation since 1980. These studies are like suddenly discovering that most Americans are seven feet tall. If we were looking through a telescope and seeing the same things happen on some other planet, we would find it bizarre and fascinating. If someone's watching us, they're doubtlessly bewildered.

With this level of warming, the Antarctic ice sheet could fail more quickly than previously believed. The most recent El Niño ocean warming lasted five years, not the usual two, which researchers at the National Center for Atmospheric Research think may result from the extra global heating. *Lancet*, the British medical journal, reports that yellow fever mosquitoes, previously unable to survive at altitudes above 1,100 yards, now live in elevated parts of South America.

Even news that sounds good probably isn't; longer snow-free seasons in the Northern Hemisphere mean that soils start to dry out that much sooner. This and rising temperatures make drought much more likely.

Compared with the magnitude of the situation, the response of our politicians (and even most environmentalists) has been feeble. Although the United States promised at the 1992 Rio conference that we wouldn't be emitting any more carbon dioxide in the year 2000 than we did in 1990, we've done virtually nothing to meet our promise, and like almost every other developed nation on earth we will miss the goal, probably by more than 10 percent.

Now negotiators are trying for an agreement with more teeth—but the deadlines are far away and the targets modest. Instead of locking ourselves into a document that physics, biology, and chemistry are rendering instantly outdated, it's probably better to convene the world's leaders on the crumbling edge of the West Antarctic Ice Sheet. Maybe then we'd get quick action.

Eight years ago, James Hansen, the NASA scientist who has used his computer model of the climate to make the most prescient forecasts about global warming, predicted that by the late 1990's the effects of global warming would become apparent. For eight years, I've believed this was true, and still this spring's flood of new data shocks and scares me.

All those things that people said would happen if we didn't clean up our act? They're happening. This is a new planet, not the earth we were born on. ■

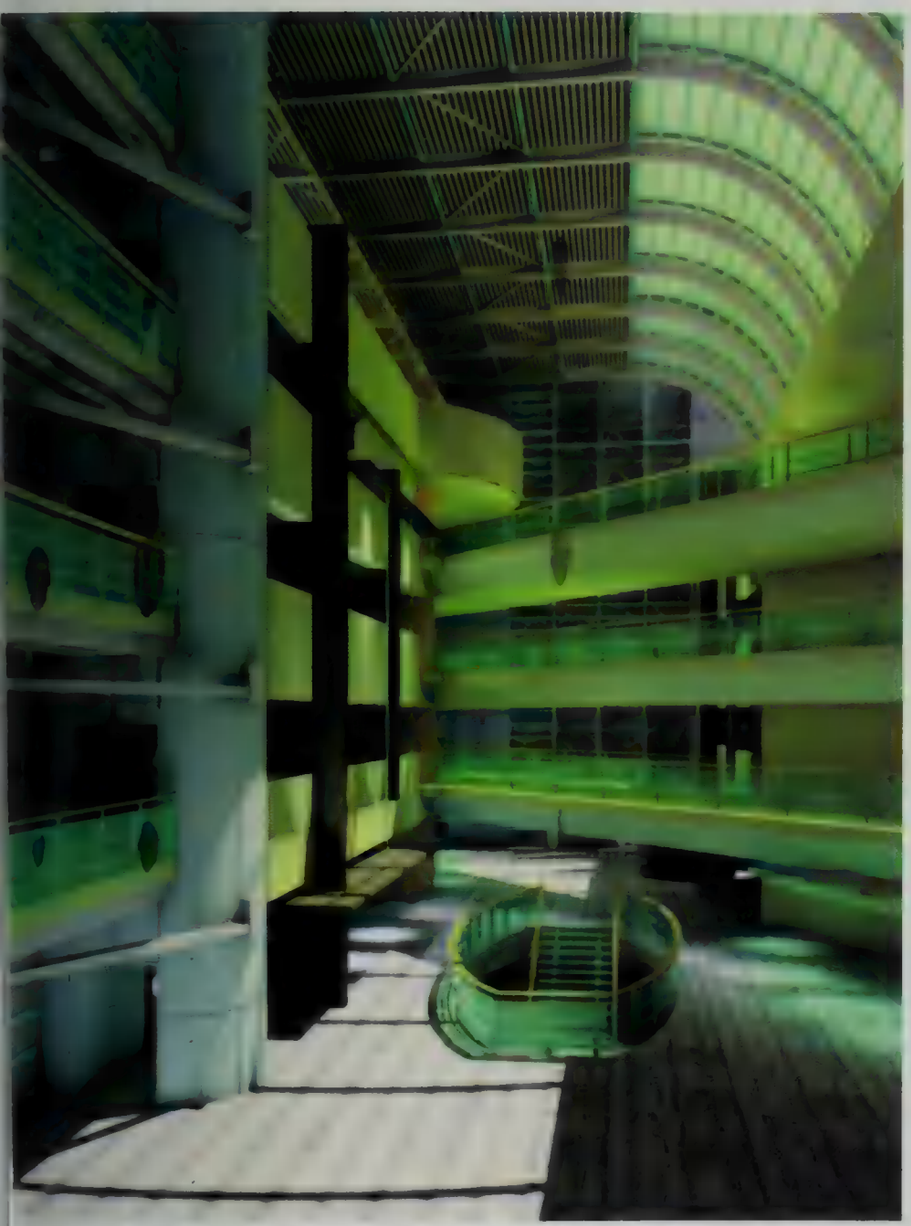
Bill McKibben writes frequently for Audubon Magazine *and other periodicals. He is the author of* Hope, Human and Wild: True Stories of Living Lightly on the Earth. *He lives in Johnsburg, N.Y.*

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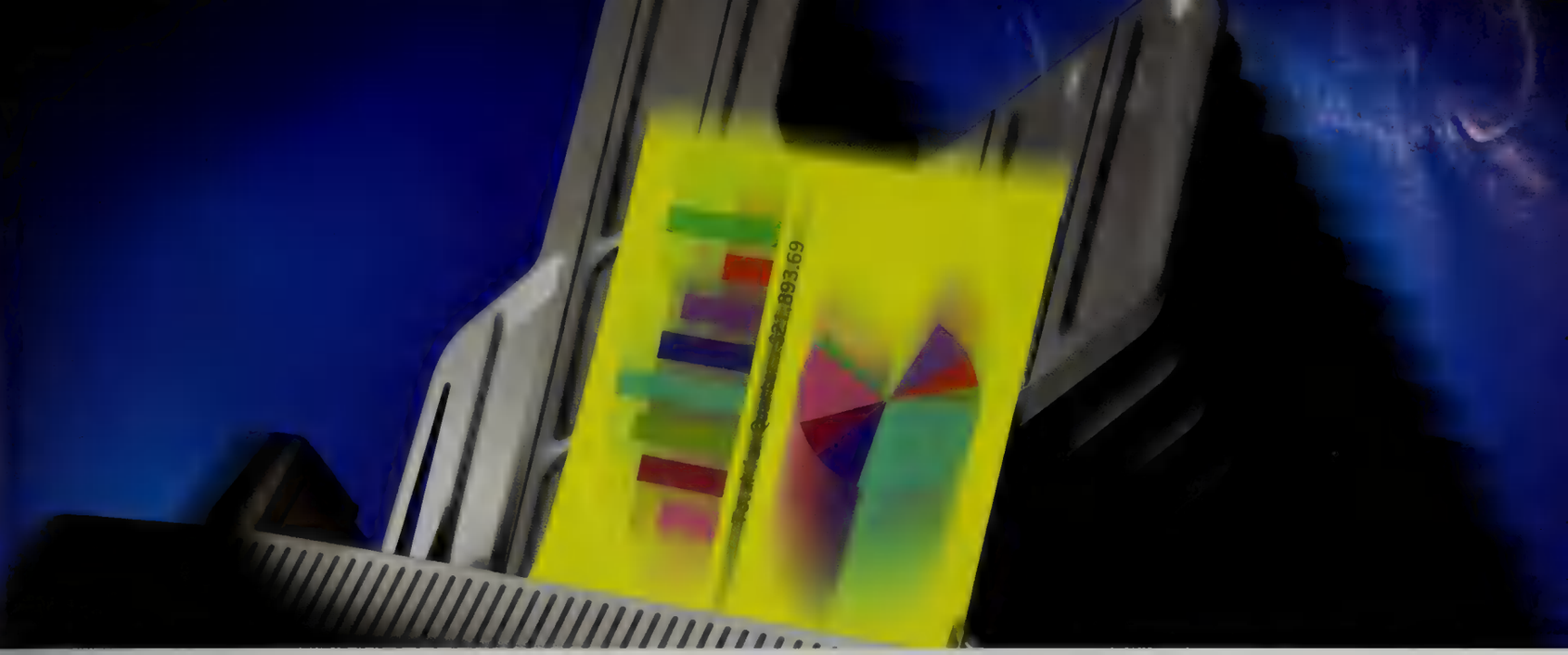
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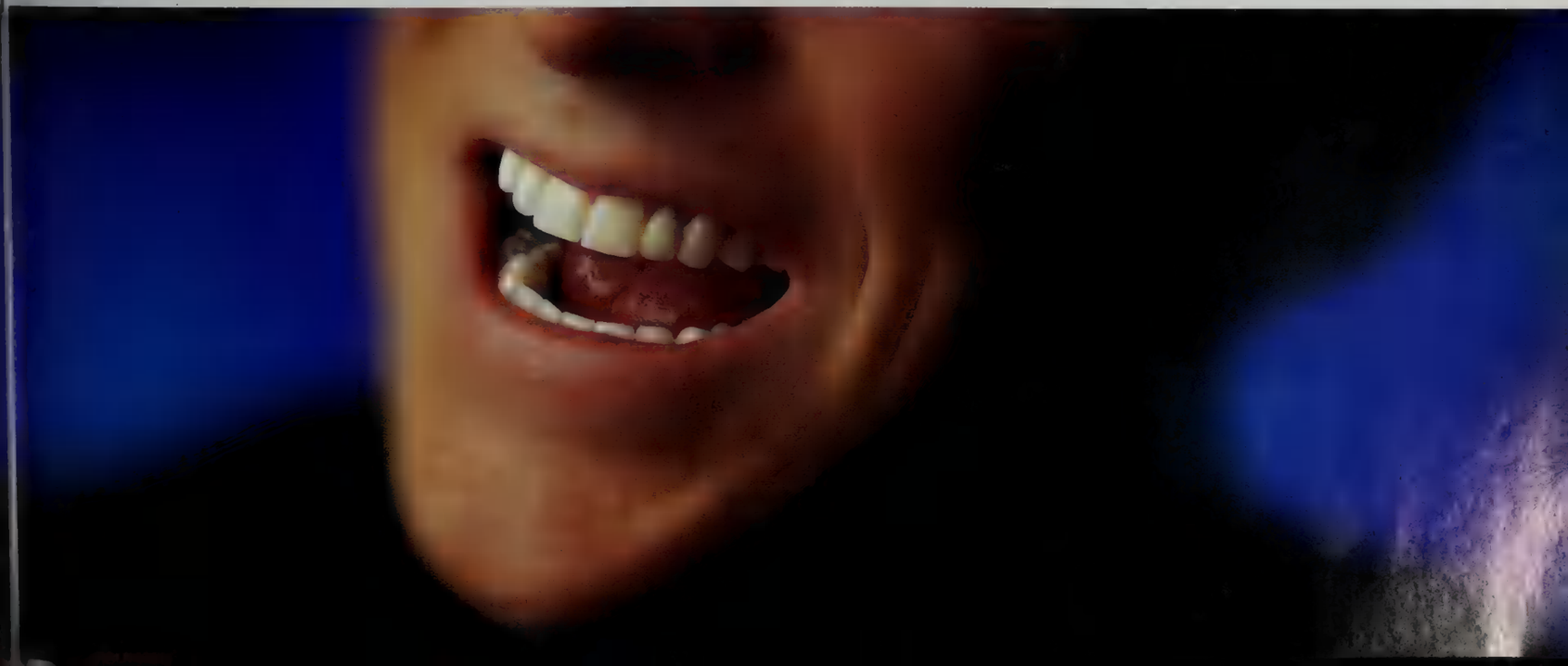


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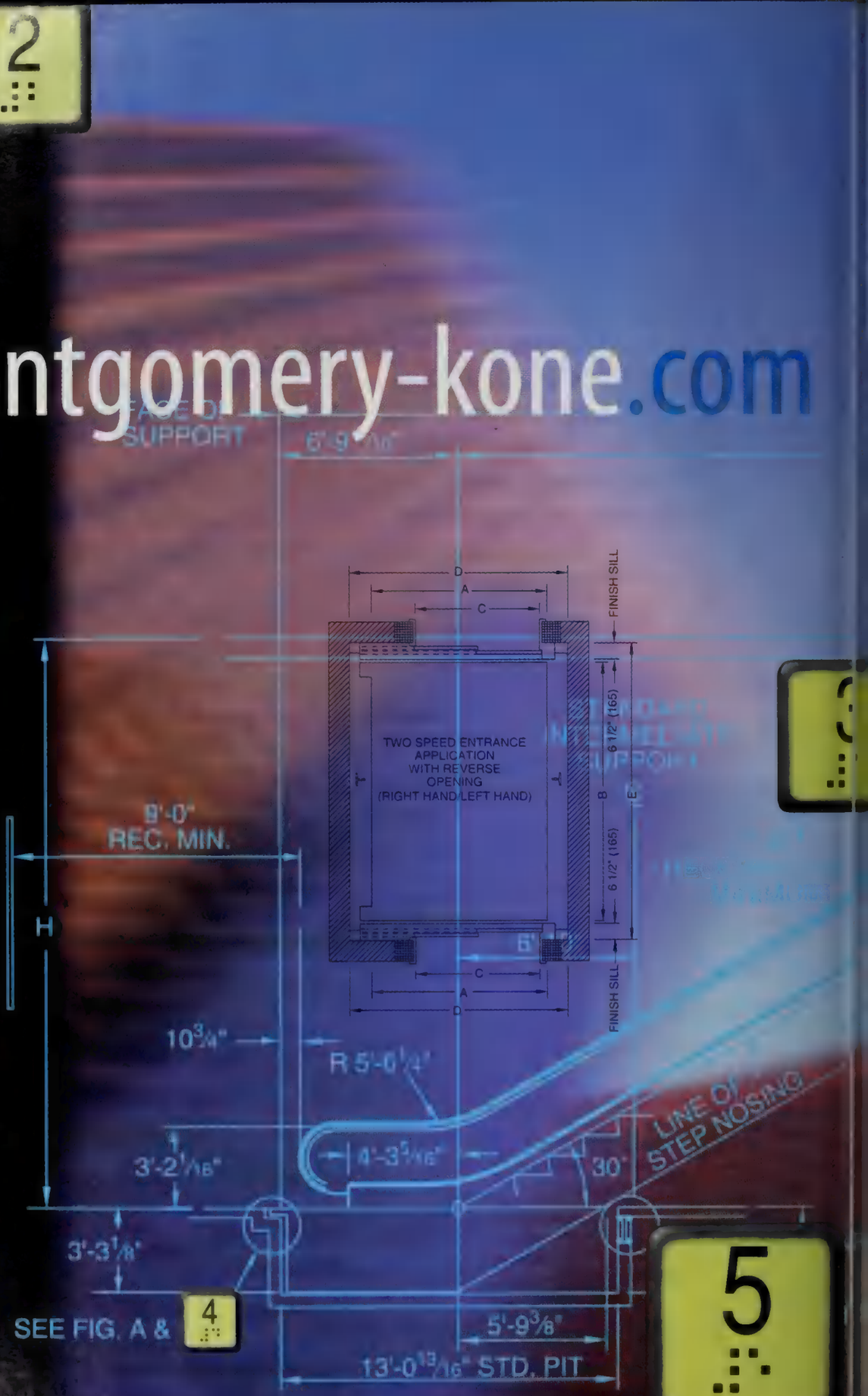
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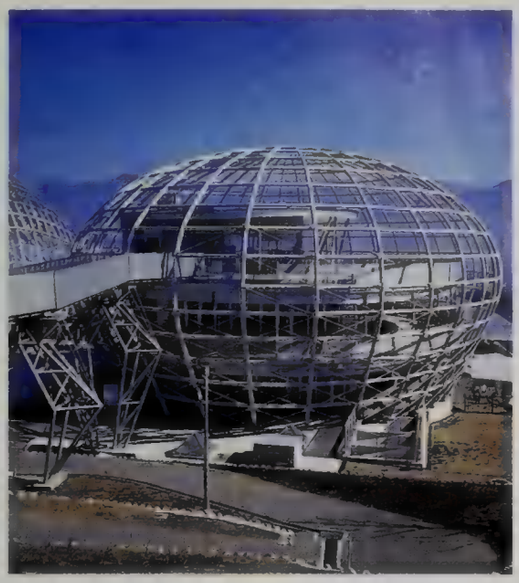
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Dialogue

11 Editorial **16 Speak Out** **20 Pulse**
14 Letters **18 Mentors** **34 Dates/Events/Books**

News

25 EPA Hopes Its Renovated Buildings Will Set New "Green Standard"

26 Consortium Including Safdie and SOM To Design Toronto Airport

Projects

40 Chapel of St. Ignatius, Seattle University, *Seattle, Wash.*
A study of sacred space in texture, light, and color.
Steven Holl Architects; Olson Sundberg Architects, Associate Architect

54 Bibliotheca Wittockiana, *Brussels, Belgium*
A private library adds a second story.
Igloo Architects; Emmanuel de Callataÿ, Bureau d'Architecture et de Décoration, Architect of Record

60 Physical Therapy Building, *Philadelphia, Pa.*
A tough, small building helps a campus face its future.
Mellet Architects

Features

72 Hyper Growth in South China
Michael Sorkin looks at the explosion of building in the Pearl River Delta and Shanghai.

81 Pacific Rim Section
RECORD 's fifth annual coverage of the Asia-Pacific region.

82 Country Reports
Economics, politics, construction markets, design trends, and key projects in 13 countries in Asia.

Building Types Study 751

107 Affordable Housing: Housing Credit's Future?
The low-income-housing tax-credit program is in doubt.

108 Market Heights, *San Francisco, Calif.*
Herman Stoller Coliver Architects

112 Auburn Court, *Cambridge, Mass.*
Goody, Clancy & Associates

114 Northside Terrace Condominium, *Brooklyn, N.Y.*
James McCullar & Associates

116 The Young Apartments, *Los Angeles, Calif.*
Cavædium

118 Plaza Maria Family Affordable Apartments, *San Jose, Calif.*
David Baker Associates Architects

Practice

123 AIA Documents: The Rules Are Changing
Proposed 1997 revisions to documents A201 and B141.

Technology

129 Getting Your Feet Wet in CAD
Guidance for the computerphobic.

Products

141 Furniture by Architects **146 Product Briefs**
145 Masonry **148 Product Literature**

155 Reader Service Card **172 Classified Advertising**
164 AIA Continuing Education Self-Report Form **174 The Future**

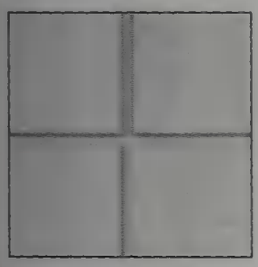
Continuing Education: *The AIA/ARCHITECTURAL RECORD continuing-education opportunity this month is "AIA Documents: The Rules Are Changing" (pages 123–26).*

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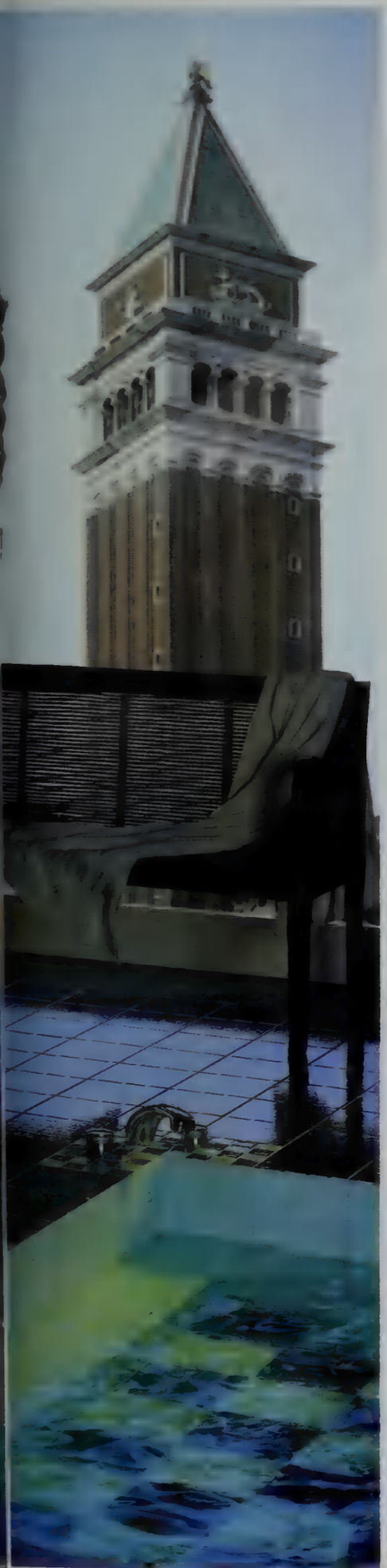
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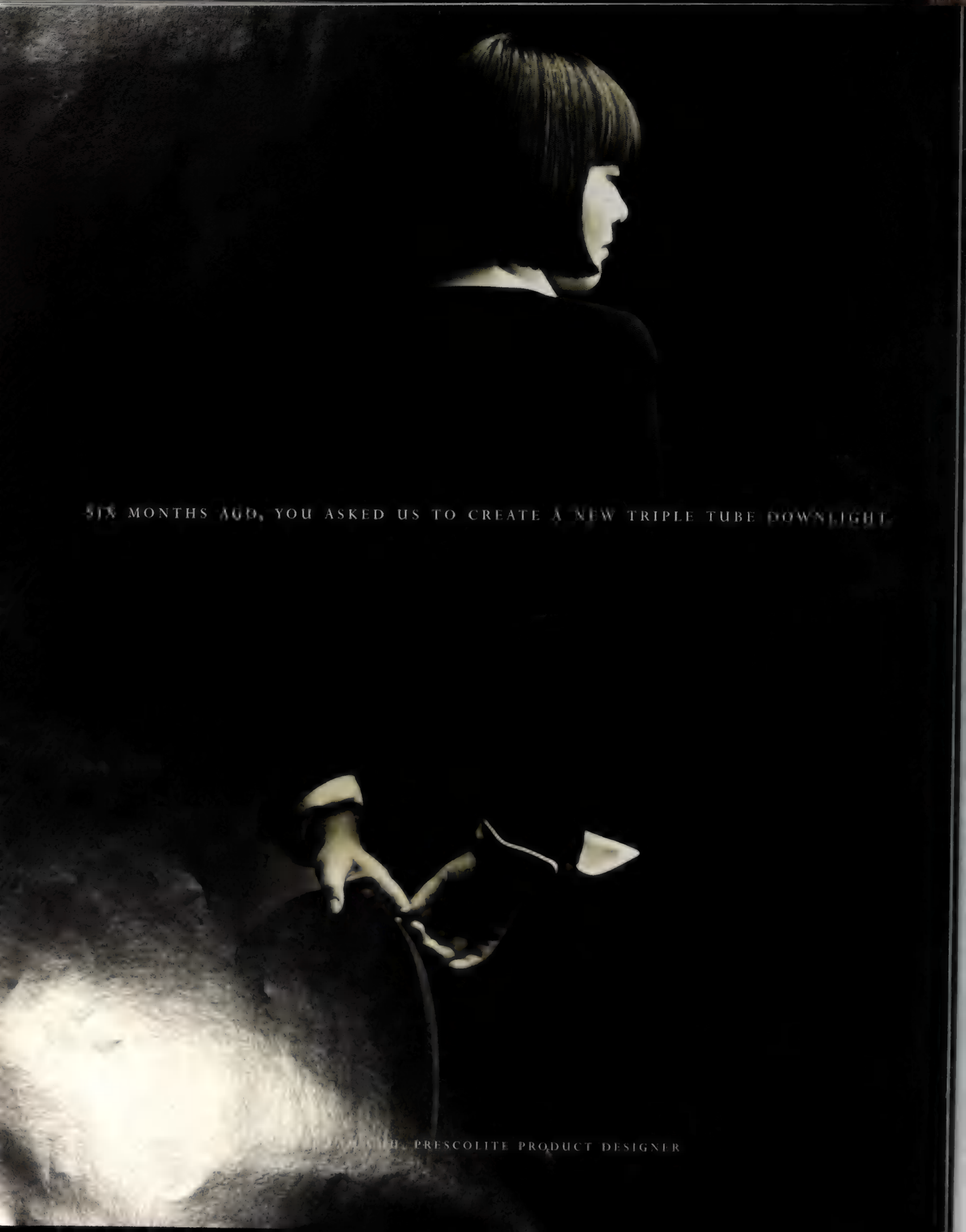
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An Explicit Memorial

BY ROBERT A. IVY, FAIA

Summer is a time for roaming and a time to visit architecture. Few places offer more three-dimensional fodder for our hungry senses than Washington, D.C., where many of this nation's collective myths and actual history find expression in stone and sweeping lawn. Our early optimism, imperial ambitions, and democratic beliefs in human dignity spill from the city's rational plan to the parkland, where they can be read, like frozen poetics, in statues, buildings, and memorials.

The recently completed memorial to Franklin D. Roosevelt will encourage you, as it did me, to pull on a pair of jeans and spend several hours outdoors, reflecting on the entire notion of what memorial architecture can do. As an important component within a rarefied collection of four presidents honored on the Mall, this newcomer also distills our own moment in history, raising questions about our attitudes toward design and its relation to the public realm.

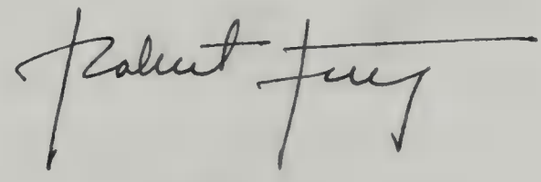
The 7.5-acre site is marked by a series of spaces delineated by forceful granite walls 12 ft high, not unlike a Mayan ruin made from the structural blocks of the Brooklyn Bridge, open to the sky. The landscape architect Lawrence Halprin devised a pathway that zigs its way through time by tracing Roosevelt's years of public service. The visitor passes from open space to space, cushioned from passing traffic by bermed walls, reading the president's words of courage or comfort incised into granite, while encountering splashing water, ramps and rocks, and representational sculpture illustrating bread lines or a fireside chat.

The project succeeds, for me, at the larger scale. The walls provide strong shelter, a bulwark appropriate to an individual with a belief in a government with strong shoulders. The political arguments that have dominated the press pale before an open-air site where children fiddle with pools of water and older citizens sit and reflect beside the Tidal Basin. More troubling, however, is the immediate scale, particularly the site's reliance on statuary so explicit and didactic, so dependent on social realism that it leaves little to the imagination. The effect of forced passage, a movement system that demands passing before this series of tableaux, each intended to evoke a specific emotion, seemed manipulative, an imposition on my own free-ranging ideas. I found myself saying, "Please don't tell me what to feel."

Where is the Washington Monument's abstract clarity, the Lincoln Memorial's heroic grandeur, or the Vietnam Memorial's spiritual depth? Although the pathway through the FDR Memorial ends in a larger plaza graced by a water cascade, there is no sense of focus, no locus of memory or emotion, no abstraction to cradle speculation.

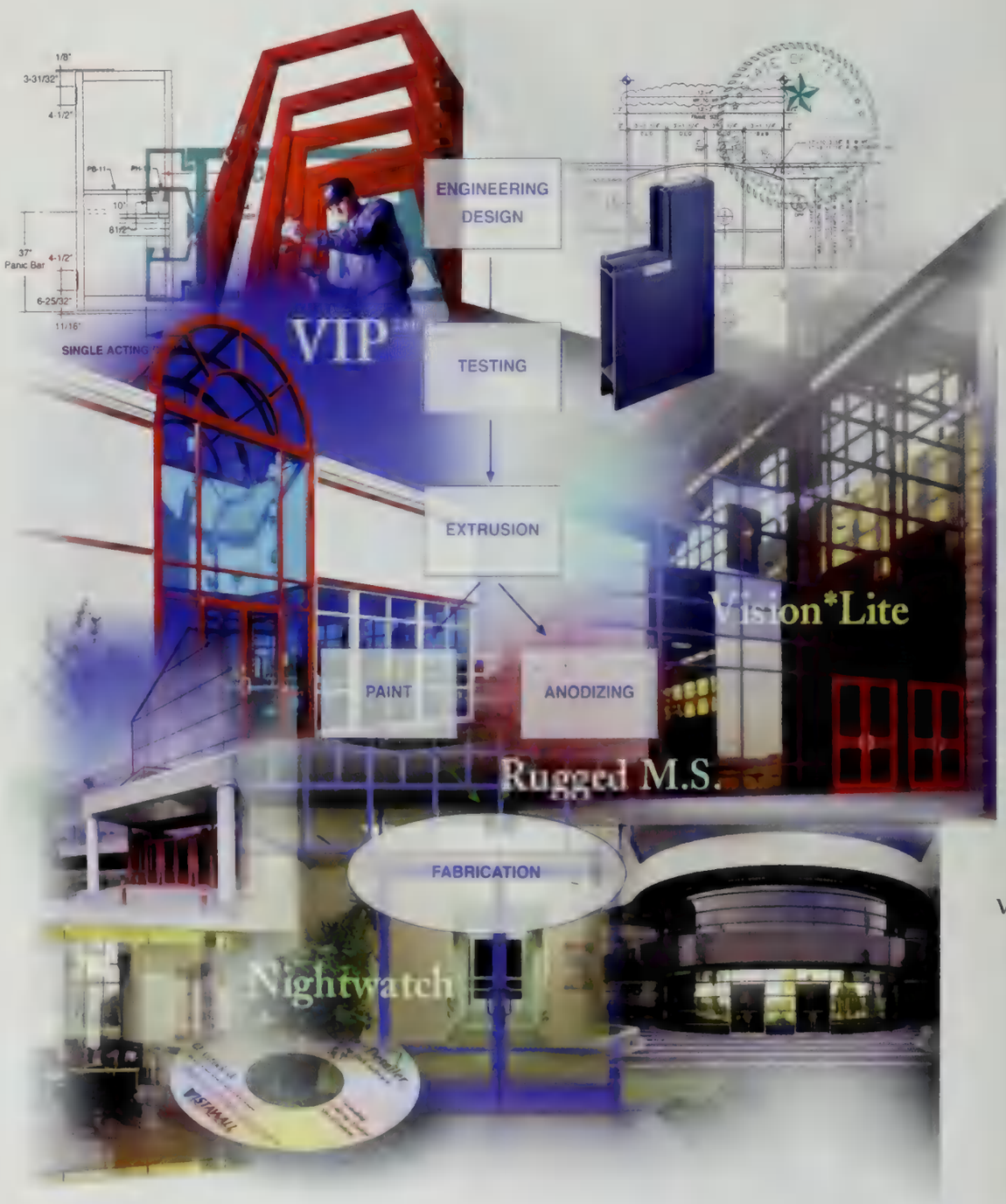
Less explicit, but a subtext in this design, is an accommodation to the site as commercial attraction, a magnet meant to draw in the tourist, to entertain for a specified duration, and to transfer revenue at a bookshop. Although the site offers an iconographic and actual accessibility to the public, the FDR Memorial remains landlocked and pragmatic, tied to individual pieces when it might have soared.

The commercial imperative, reflected in the need to entertain rather than to trust the visitor's own imagination, left me unsettled after my visit. Strong walls, words, and a single statue in the open air would have sufficed, but ours is often a time of excess and accommodation. The final chapter on the memorial is not yet written. Since it will live far beyond a year or a decade, I'm going back. I'll meet you there, where you can decide for yourself.



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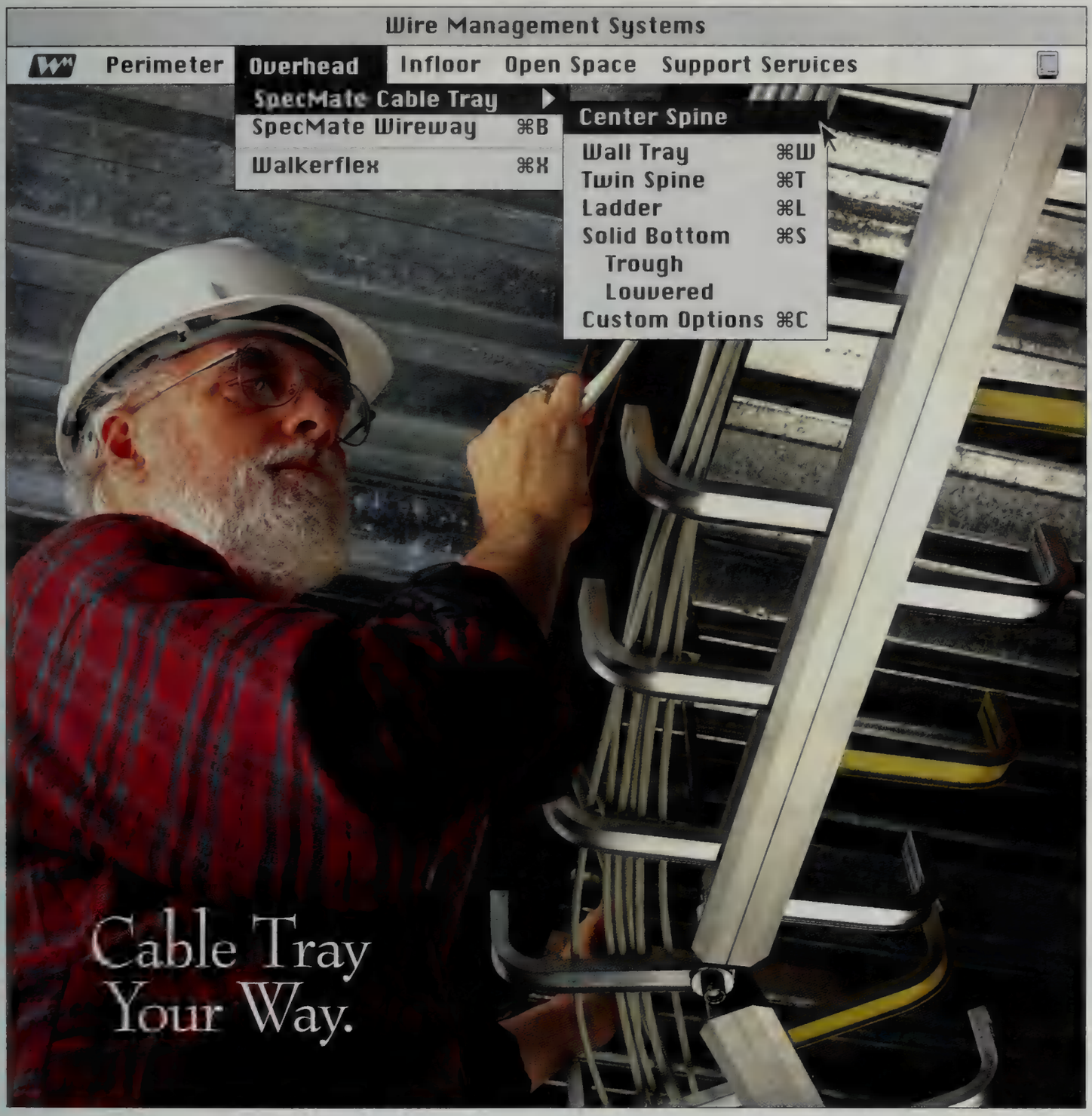
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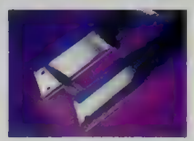


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CIRCLE 8 ON INQUIRY CARD

LETTERS

A collaborative AIA Gold Medal

The time has come, as Robert Ivy states in his editorial [RECORD, May 1997, page 29], for great collaborative efforts to be recognized with the same degree of importance we have heretofore reserved for individual talents.

Let's hope that Raj Barr-Kumar, FAIA, and those who with him have the power to make AIA policy, will set the stage for recognition of collaborative excellence in architecture, not because it is our awards season, but because a team has shown us such excellence.

—Dick Thevenot, Hon. AIA
Executive Director, AIA Louisiana
Baton Rouge, La.

I found Robert Ivy's call for a collaborative Gold Medal unappealing (if nicely written). It is not a citation we offer, but a medal. Medals recognize noble, courageous, strong, and heroic efforts, and they are best worn by one person at a time.

To suggest that the medal is indicative of "cultish" or, worse, "male cultish" behavior is, to my thinking, a form of hubris. It bothers me when someone stakes out the "enlightened" ground in this manner. I do not worry that by honoring the achievements of an individual, we will be held in contempt by the "larger culture." Rather, I believe that the world is and will continue to be a better place when heroic efforts are honored.

If recognition of special individual accomplishment is, as Ivy offers, a "nineteenth-century notion," it is one for subsequent times too. I argue it is timeless.

—Donald Wardlaw, AIA
Oakland, Calif.

What an elegant position in terms of substance and style—plus it's timely.

—Robert Venturi, FAIA
Venturi, Scott Brown and Associates
Philadelphia

AIA awards: restoration work deserves more respect

The only reasonable conclusion to make regarding Malcolm Holzman's commentary on the historic preservation projects submitted to the AIA 1997 Honors & Awards [RECORD, May 1997, pages 70–77] is that a separate category is needed for jury selection. The alternative conclusion is to show prejudice toward new work and an unfortunate, if not reckless, devaluation of preservation as merely, in Holzman's words, "good behavior." To surmise that the struggles of the architect of a new building are more meritorious than the struggles of a preservationist/conservator defies good reason.

Change is the nature, the very definition of rehabilitation; respect for authenticity dictates clear differentiation of the product of our own age from the original. But we go too far when favoring an ability "to see what the current architect has actually done." In the future, the jury should be certain to seat a seasoned architect with eyes sensitive to the subtleties of preservation.

Good work doesn't just happen, not by rote or rule. Preservation is an art. It is time we recognize its best examples and its artists.

—James W. Rhodes, FAIA
Beyer Blinder Belle
New York City

A strong voice for RECORD

Three cheers for Michael Sorkin. His overview of the 1997 Honors & Awards [RECORD, May 1997, pages 82–85] was elegant. Give him a regular column and let him loose.

—Walter S. Pierce, FAIA
Lexington, Mass.

Architectural education

I am provoked to write by Lee D. Mitgang's "Saving the Soul of Architectural Education" [RECORD, May 1997, pages 124–30].

If Mitgang was educated in an Americ[illegible] school of architecture, he is exam[illegible]ough that something, somewh[illegible]ing. His observations show [illegible] most superficial awareness c[illegible]ractice of architecture and not the slightest grasp of the still-secret issues affecting the architectural academies and their relationship to the profession. The necessary subject remains unattended, yet to be articulated to the level it deserves. There are, however, people who can do it. I would wish to attack each premise of Mitgang's article to the full depth of its weakness, but a gratuitous statement deserves only a gratuitous critique. Please, please dig more deeply toward the truth—even if it remains inaccessible.

—Dennis J. Kilper, AIA
Blacksburg, Va.

Lee Mitgang's article on architectural education made a number of important points, but there are, I believe, two issues of larger significance to be addressed. First is the need to greatly reduce the number of students receiving professional training in architecture. Second is the potential long-term benefit of expanding architectural education for those who major in other fields.

The competition for architectural work is more than twice as severe as it was a generation ago. Surely the answer to this problem is for the schools to stop producing so many graduates until a better balance between degrees and jobs is reached.

Many teachers and administrators in the schools would say that architectural education can be a valuable experience even if a student never enters the profession. I would agree, but I think it would make more sense to stop training students for nonexistent jobs in architecture and divert architectural education resources to undergraduates in other fields of study. Business school students, for example, could really profit from such learning. For better or worse, they are the ones who will commission much of the architecture of the next century.

—G. Mackenzie Gordon, AIA
Gordon & Gordon
Lakeville, Conn.

Kudos for RECORD

The May 1997 issue was your best to date. It was like a treasure trove. I could not decide where to begin reading it. From the Honors & Awards presentation to the features on technology, the issue shows your commitment to the profession. You have produced a masterpiece in fine print. Thanks.

—Mirza A. Baig, Architect
Karachi, Pakistan

Designing abroad and at home

In his article on designing abroad [RECORD, May 1997, page 36], Khalil K. Pirani makes an important case for architects to design with greater sensitivity to foreign cultures. He might also have added that even within a single country there are many and varied cultural traditions that architects need to address. The similarity of tract housing all over the United States, regardless of site, climate, resource availability, or local tradition, is one example of homogenization.

Schools of architecture should be leaders in teaching a regionalist approach to design, requiring that architecture reflect its time, place, and culture, and that it link the past, the present, and, perhaps, the future. Architecture based on the interaction of contemporary issues, timeless qualities drawn from local culture, and personal visions of designers constitutes a regionalist approach that is neither sentimentally historicist nor disconnected from life. The skills of a regionalist include the ability to understand vernacular landscapes, urban forms and buildings, and to make technological choices based on climate, material availability, and the economics and skill of the labor force. A skill of a different kind is the ability both to "read" culture, particularly as it is manifest in built form, and develop a cross-cultural viewpoint that recognizes that even within one country there may be distinct subcultures, despite commonalities.

The history of architecture tells us that the qualities that I have ascribed to *(continued on page 161)*



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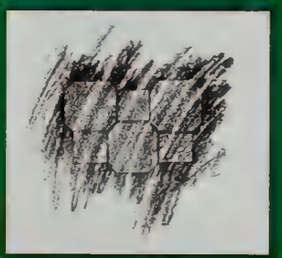
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CIRCLE 9 ON INQUIRY CARD

SPEAK OUT The Competition Killer Initiative: Bellwether for the Nation

BY M. ARTHUR GENSLER JR., FAIA



M. Arthur Gensler Jr., FAIA, is the founder and chairman of Gensler, an international design firm. He is also co-chairman of Architects Registered in California Political Action Committee (ARC PAC), an organization dedicated to defeating the Competition Killer Initiative. For more information on ARC PAC or the Competition Killer Initiative, please call 916/448-9082.

Given the potentially devastating impact of the California Competition Killer Initiative [RECORD, May 1997, page 50] on our profession and the quality of public architecture, I felt this issue warranted further examination.

We believe this measure is indicative of a national trend. Massachusetts fought off a similar initiative in 1992. Federal legislation mirroring the initiative was introduced in Congress in recent sessions. Hawaii, Ohio, New Jersey, and, most recently, Kansas have all dealt with the issue of competitive bidding or using in-house design services under the guise of ethics reform.

Most dangerous of all is the national precedent this initiative would set with regard to qualifications-based selection (QBS). Since passage of the Brooks Act in the early 1970s, which established QBS as the procurement method for A/E services at the federal level, we have seen nearly 40 states and thousands of local entities and special districts adopt similar measures. If the largest state in the union—the seventh largest economy in the world—abandons QBS, begins using in-house A/E services, and starts requiring competitive bidding for any private-sector contracts, then other states are sure to follow.

The initiative's sponsor, the Professional Engineers in California Government (PECG), is the union for engineers and architects employed by the State of California. They would like us to believe that this measure will protect taxpayers by requiring competitive bidding. But would a state bureaucrats' union really spend $2 million to help taxpayers?

This is a cleverly disguised scheme bankrolled by a union of state employees to feather its own nest at the expense of California taxpayers. In brief, the initiative would require the State Controller to perform a cost analysis on any project receiving any amount of state funding or administration to determine whether it would be cheaper to have the project designed by state-employed designers or to contract with the private sector. The catch is that the cost analysis for the state-employed designers accounts for only about 40 percent of the project's costs, ignoring employee compensation, rent, utilities, phones, legal, insurance, and other office expenses. The private sector's analysis, on the other hand, must account for all costs associated with the project, including a hefty state-contract administration fee. That kind of accounting would land any private-sector CPA in jail.

The initiative would also require any private-sector architect or engineer who happens to get a contract with the state to indemnify the state and its employees against their own negligence. Who indemnifies the state employees' design work? Why the taxpayer, of course.

The Competition Killer Initiative applies to schools, hospitals, libraries, courthouses, correctional facilities, low-income and senior housing, mass transit, planning, environmental studies, recreational and park projects, historic preservation, and more.

If this initiative passes, up to 35 percent of the projects currently designed by private-sector architects would be frozen indefinitely while the State Controller hires staff to perform thousands of these fraudulent cost analyses. Up to 100,000 private-sector jobs would be lost in the first year alone just from the delays. The economic impact would be greater than that of the last recession, from which many of us are still recovering.

Enough is enough. Architects should be selected based on their qualifications and most of us are not afraid to compete in this manner. I find it appalling that designers employed by the State of California are attempting to amend the state constitution to guarantee their jobs. Furthermore, the deceptive campaign they are waging borders on the criminal. Shame on them.

Architects are not known for their political activism, but this is one battle we can't afford to lose. We owe it to ourselves and, more important, we owe it to our fellow citizens to prevent public design from becoming the lowest common denominator. ■

Contributions: *If you would like to express your opinion in this column, send submissions by mail (with a disk, if possible) to Speak Out, Architectural Record, 1221 Avenue of the Americas, New York, N.Y. 10020; fax 212/512-4256; or E-mail rivy@mcgraw-hill.com. Essays must not exceed 700 words. The editors reserve the right to edit for space and clarity. Where substantial editing occurs, the author will receive final text approval.*

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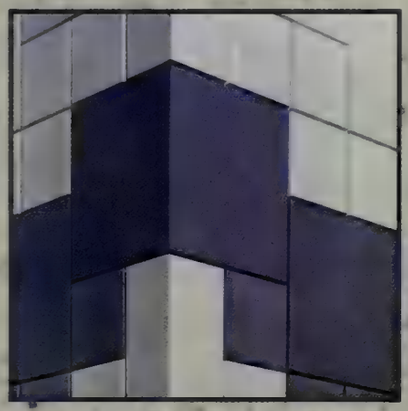
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CIRCLE 10 ON INQUIRY CARD

MENTORS How young architects can gain credibility with clients, and whether an employee should report a supervisor's error.

Maryann Thompson and Charles Rose are principals of Thompson and Rose Architects of Cambridge, Mass. Both received an M.Arch. from Harvard University.

Donald Singer, FAIA, is president of Singer Architects of Fort Lauderdale, Fla. His firm received the 1997 Firm Award from AIA Florida.





After working for a large architectural firm for 10 years, I left to form a new company with two partners. We hung out our shingle six months ago. Although the three of us held responsible positions with our former employers, we are concerned that clients may not take us seriously because we are young; we are all under 31. Can you give us advice on how to gain credibility with our clients?
—unsigned

Maryann Thompson and Charles Rose respond: As a young firm, we have faced this question for several years. Our suggestions follow.

We have found that the initial information received by potential clients should include résumés establishing breadth of experience and cover letters demonstrating that you have clearly heard the client's project description and their concerns. You should include articles and awards, as well as brief documentation of your best design work. Good design and examples of quality construction will do wonders in overcoming age discrimination.

Use the job interview to compensate for your age: understand the site, program, and budget, and have a well-rehearsed presentation that demonstrates the thorough preparations you have made. Demonstrate your confidence, mastery of the project, and ability to recognize design possibilities and opportunities. The interview is not the place to reiterate your qualifications or sound your horn. Show the client [illegible] you listen and how you will respond to their needs. Present your theoretical underpinnings and formal disposition, but be flexible. Show that you can keep architectural arrogance in check.

Maintaining credibility throughout the design of a project is essential to its success and to secure references. Constantly demonstrate design and technical excellence, especially during construction. It is important to know the limitations of your abilities: surround your firm with exceptional consultants. Local AIA chapters present opportunities to demonstrate your ties to a professional organization, yielding a credibility associated with more established firms. Seek opportunities for awards and publication in local and national venues and inform your current clients when successful. Awards for unbuilt work can prove essential to your client's determination to build the project and their ability to raise funds for it.

Primarily, however, maintain credibility with clients by serving them exceptionally well. All drawings and texts that leave the office of a young firm must be proofed by principals. Principals must be immediately accessible to clients. Visit projects well after the job is complete and solve any post-occupancy problems. If you have served a client well, you will be able to call on them to support you in the pursuit of new work.

What do you do when you know a detail is going to get your office in trouble? I am relatively new to a company out West, and my boss sketched a series of curtain-wall details that I know are not going to work. I should know. The last office I worked in made similar mistakes and the wall had water-infiltration problems. When I brought up the matter, my boss (the project architect) made reference to my youth and basically told me to clam up. Should I go to a partner and point out what I know?
—unsigned

Donald Singer, FAIA, responds: Assuming that you are correct about the detail, this is a question of honesty versus loyalty. Job security is a related issue. Your "boss," however, is the person with the most to lose. If this person is worth working for, there should be no bad feelings or retribution as a result of your discussion. The decision to be honest will let you feel good about yourself, even if you wind up looking through the classifieds for another position.

The loyalty conflict comes, of course, with going "over the boss's head." If reason fails with "the boss," and you do talk with a higher-up, you may have made an enemy, but you have held on to your self-esteem. You will also have done the right thing for the client. ■

Questions: *If you have a question about your career, professional ethics, the law, or any other facet of architecture, design, and construction, send submissions by mail to Mentors, Architectural Record, 1221 Avenue of the Americas, New York, N.Y. 10020; by fax to 212/512-4256; or by E-mail to rivy@mcgraw-hill.com. Submissions may be edited for space and clarity.*

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CIRCLE 11 ON INQUIRY CARD

PULSE RECORD readers were asked: Should faculty members at architectural schools be licensed?

YES: 84% NO: 16%

Yes: Who would say that people who teach others to drive a car do not need a driver's license? Driving teachers should be professionals, not pedestrians with secret agendas because they didn't pass a driving test. Architecture schools have the same obligation to the public. *—Harry Compton, Architect, Tallahassee, Fla.*

Yes: I am a recent graduate of a six-year program that required co-op experience. In and out of the classroom, it was the licensed architects who not only emphasized the application of history, theory, structure, and technology, but related it to the practice of architecture through their own experience. More important than architecture faculty being licensed, however, is for the schools to define whether they are going to train students to talk about architecture, write about architecture, or be architects. Some schools would have one believe, erroneously, that their program is the total package of talking, writing, and doing. It is the graduates of such programs that have been sold short.*—Russell A. DiNardo, Princeton, N.J.*

Yes: As a student in the master of architecture program at the University of Michigan, I believe faculty members should be licensed. I think of licensing as the completion of education and I think it is important for the faculty providing me with my education to have gone through what I am preparing to do. Licensing doesn't mean a faculty cannot be diverse, but it does mean they are qualified to build.*—Jeri Debaro*

No: I strongly believe that faculty need not hold licenses. From my experience, I have found that the essence of the college curriculum is so different from the realities of professional practice, on which most of the Architectural Registration Exam is based, that there is no reason to be a registered architect in order to teach. Furthermore, I believe that licensure by no means makes a person a better architect or designer, and certainly would not have any effect on improving an individual's teaching abilities.*—Patrizio Cimino, New York City*

No: When I was in architecture school, we had a new professor from South Africa. Because this was a fifth-year studio, there was little time to gain insight into our professor's experience. A license would not have meant anything to students at that time. The professor did, however, arrange for a presentation of his work that established a level of respect among the students that a license could not have achieved.*—David Zamora, AIA, CLJ & Associates, Birmingham, Ala.*

No: An architectural license is not a teaching credential. If, however, a professor is trying to teach the process of becoming an architect or the practice of architecture, then a license would be helpful. But why make a teacher get a license and pay additional dues?*—Steve Larson, Architect, San Diego, Calif.*

No: While I don't believe that all faculty should be licensed, requiring a certain percentage of architectural school staff to be licensed and practicing might be a good strategy. *—Martin Zelnik, AIA, New York City*

This Month's Question:

Are architects today operating within a broadly understood and commonly shared ethical system?

"The time has come for architects to redefine their professional ethics, the tenets that guide their behavior," writes Robert Ivy, editor in chief of RECORD, in his June editorial. "In our age of cultural relativism, the debate will not be clean or easy. No single ethic will emerge. The conversation should be multilayered, involving everything from doing business with our clients to larger issues like the profession's relationship to society."

Do you think architects today are operating within a broadly understood and commonly shared ethical system?
☐ **Yes** ☐ **No**

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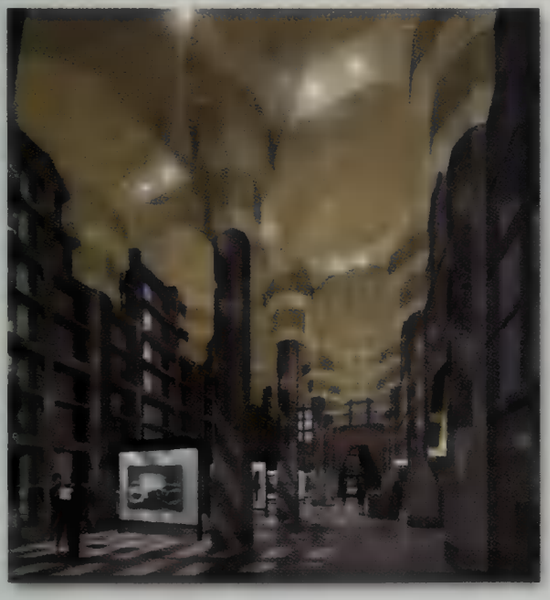
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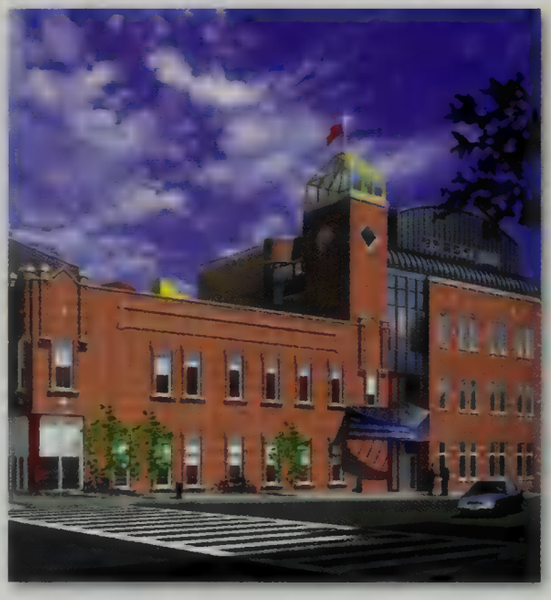
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CIRCLE 12 ON INQUIRY CARD

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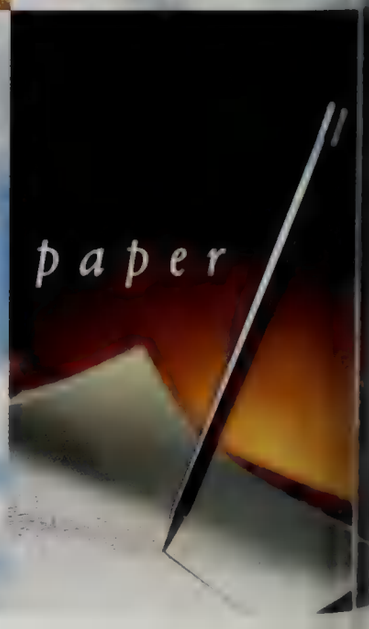
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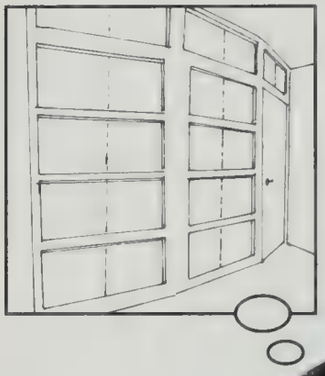




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CIRCLE 14 ON INQUIRY CARD

ACCESSIBILITY AND LIFE-SAFETY ISSUES DISCUSSED AT D.C. CONFERENCE

Architects, advocates for the disabled, and related interest groups convened in Washington, D.C., in June for the Universal Accessibility Conference, co-sponsored by the AIA and the U.S. Access Board.

Keynote speaker U.S. Attorney General Janet Reno called for continued support in the accessibility campaign. "This is not about special designs for special people," she said, "but rather design for all." Reno outlined the Justice Department's three-step education program: explaining the law, negotiating common understanding, and litigating to ensure compliance.

One observer noted that civil rights and building codes groups have addressed the issue from opposite sides. Civil rights advocates want all buildings accessible to everyone, while building codes groups—including architects—are concerned with life-safety issues.

The litigation aspect of the Justice Department's program worries many architects. Building codes vary by state, and plan reviews during the permit process often uncover errors and omissions. Accessibility code compliance is more ambiguous. Civil rights cases are brought only when complaints are filed after construction, and most litigation involves who will pay for required code compliance.

Conference organizers argued for a single document that would include state and local building codes, and federal disability and fair-housing statutes, providing for both accessibility and safety.

MIES HOUSE OPENS TO THE PUBLIC **For architects visiting Chicago, there long have been two obligatory stops: the Loop, with its trove of historic skyscrapers; and Oak Park, which offers a cache of houses by Frank Lloyd Wright. Now, 58 miles west of the city, another gem beckons: Ludwig Mies van der Rohe's Farnsworth House.**

Its owner, British real estate developer Peter Palumbo, has opened the renowned steel-and-glass pavilion to tours for the first time. The tours follow a $250,000 restoration, necessitated by a record-breaking rainfall last July. The 46-year-old house, which sits near the north bank of the Fox River, was inundated with five feet of water, though Mies had raised it on steel columns to avoid such a problem. One of the house's huge plate-glass windows cracked, furniture was upended, and artwork spilled into the river's muddy brown waters.

Supervised by Mies' grandson, Chicago architect Dirk Lohan, FAIA, the house has been restored to its Miesian perfection. The Roman travertine floors have been washed of river mud. The flood-warped primavera cabinets have been replaced, and the Barcelona chairs have been re-covered.



The purpose of the tours, Palumbo says, is to make the house financially self-sufficient and to keep it under his family's control. For tour information, call 630/552-8622.



EPA HOPES ITS RENOVATED BUILDINGS WILL SET A NEW "GREEN STANDARD"

Can a government project be done on time and within budget if it includes not only massive historic renovation but state-of-the-art environmental features?

That's the challenge the Environmental Protection Agency (EPA) has set for itself with its new headquarters project under way in downtown Washington, D.C. As the nation's leading environmental watchdog, the EPA hopes the project will become a "green standard" for future government buildings, demonstrating what's possible in sustainable architecture within the often difficult constraints of federal budgets and regulations.

The 2.3 million-sq-ft headquarters project combines construction of one new building and renovation of several historic structures in the Federal Triangle district of Washington. The General Services Administration owns the buildings, and RTKL Associates Inc. is architect of record for the project.

The design includes scores of environmental refinements, some of which challenge federal construction orthodoxy: operable windows, low-flow toilets, energy-efficient lighting, state-of-the-art mechanical systems, and low-emission paints, building materials, and furnishings.

None are "showstoppers," says Michael A. Kazan, a principal of Gruzen Samton, consulting architect to EPA and designer of the project's interiors and environmental specifications. Instead, says EPA project director Don Flattery, "We focused on available appropriate technologies, not pie-in-the-sky things. We wanted to show what is reasonably feasible in environmental design."

Phase One will be complete this month with the opening of the new Ronald Reagan Office Building (above). The EPA will occupy 200,000 sq ft of the new structure.

The centerpiece of the headquarters project, to be completed in the year 2000, is a 2.1 million-sq-ft, $180 million renovation of several historic New Deal–era buildings: the Ariel Rios Federal Building and the U.S. Customs Service–Interstate Commerce Commission complex.

By modernizing an existing government office complex, project architects estimate they'll reuse 75,000 tons of concrete, 6,000 tons of steel, 100,000 sq ft of glass, and 3,000 tons of masonry, which might otherwise have ended up in landfills.

Some of the most important long-term savings and benefits of the project will be realized by EPA workers, says Flattery, in the form of less eye strain, lower absenteeism, and higher productivity resulting from advanced lighting systems and improved indoor air quality.

Said Karl Stumpf, project manager for RTKL: "It is the combination of preservation and sustainable design that makes the project so successful." That, and finishing on time and within budget. *Lee Mitgang*

CONSORTIUM INCLUDING SAFDIE AND SOM TO DESIGN TORONTO AIRPORT



An international consortium consisting of Moshe Safdie Associates (Toronto/Boston), Skidmore, Owings & Merrill (New York), and Adamson Associates (Toronto) has been selected to design and manage the $2.5 billion redevelopment of Toronto's Lester B. Pearson International Airport.

The Greater Toronto Airports Authority (GTAA) sponsored an international competition and selected the team in June from a total of 220 entries. GTAA assumed control of Pearson—the largest, most congested, and one of the least efficient airports in Canada—from the federal government in December 1996.

The megaproject will replace existing Terminals 1 and 2 with a single horseshoe-shaped terminal. The privately owned and operated Terminal 3 will remain as is. New parking facilities, runways, cargo and maintenance facilities, and improved public access are also included.

The 10-year project will add 51 new gates, for a total of 130, which will ultimately be capable of handling 50 million passengers a year, double the current capacity. Construction of the new terminal is expected to start next summer.

"Our challenge will be to create an airport that is one of the major Canadian gateways and at the same time a building that is clearly Canadian in its character and imagery," Moshe Safdie said. Safdie's other major Canadian buildings include the National Gallery in Ottawa, Vancouver Public Library, and the Montreal Museum of Fine Art.

Safdie commented that the megaproject will benefit from SOM's design experience with other airports, such as New York's JFK International, San Francisco International, Chek Lap Kok in Hong Kong, and London's Heathrow. "It is especially satisfying for me, having done a series of cultural buildings in Canada, to have an opportunity to do a building more in the realm of infrastructure and transportation," Safdie added. *Albert Warson*

AGING IN AMSTERDAM **Osdorp, an Amsterdam suburb, is the site of an attention-grabbing new 100-unit home-care complex for the "young elderly." Designed by Dutch architects MVRDV, the 810-sq-ft apartments were commissioned by a housing society for people 55 and older in low- and middle-income brackets who want to live on their own but may eventually need the facilities of the nearby nursing home.**

Given Osdorp's postwar urban setting, the housing society insisted that the project take the form of a slab on grade. But because of height restrictions, the design could only accommodate 87 apartments. To increase the number of units, MVRDV cantilevered an additional 13 apartments off the red cedar-clad north facade, with steel framework designed by Ove Arup. The south, rear facade has balconies of varying sizes and materials, including orange, green, and purple plexiglass.

This is the first large project by the Rotterdam office of MVRDV, which is named after its three principals: Winy Maas, Jacob Van Rijs, and Nathalie De Vries, all of whom worked at Rem Koolhaas' Office for Metropolitan Architecture. MVRDV's headquarters for a Dutch public broadcasting corporation will be completed later this year.



GEHRY AND THE DISNEY CONCERT HALL: "TRYING TO WORK IT OUT"

With a dramatic storyline tailored for Hollywood, the 10-year saga of the Walt Disney Concert Hall and its design architect, Frank O. Gehry, FAIA, continues to unfold in Los Angeles.

In early June, Gehry was said to be withdrawing from the project he was selected for back in 1987, when Walt Disney's widow, Lillian, donated $50 million for the new building. Over the last decade, the proposed 2,380-seat Disney Hall—to be sited over a county-owned parking garage—has been plagued with cost overruns as well as political, financing, and leadership problems [RECORD, February 1997, page 28].

"We are working with Frank Gehry to keep him involved. He wants to be involved," emphasized Andrea Van de Kamp, chair of the Music Center's Board of Governors. "We are having ongoing meetings to determine the extent of his involvement and clear up misunderstandings." The problem, says Van de Kamp, "centers around the working drawings and the percentage of what is usable today. The design has been frozen for some time. We are trying to work it out."

In 1994 a new management team—headed by businessman and former L.A. County chief Harry Hufford—tackled the stalemated project, long regarded as an essential catalyst for downtown economic revitalization. An aggressive fundraising schedule was unveiled, partly to allay county concerns about the project's viability. Billionaire art collector and culture czar Eli Broad, chairman and CEO of SunAmerica, is the lead fundraiser, with major support from Los Angeles Mayor and former businessman Richard Riordan. Each donated $5 million to jump-start the effort.

Project construction costs are now pegged at $170 million, excluding the $50 million already spent. The first fundraising milestone, on June 30, 1997, was $52 million. As of press time in mid-June, $64.25 million had been raised from corporate and business sources. An additional $65 million includes $25 million from the Disney family and other donations, for total pledges of $129.65 million. The 95 percent fundraising milestone is June 1998. *Barbara A. Nadel, AIA*

INTERIORS PROFESSIONALS MEET TO DISCUSS CHANGING WORKPLACE

Interior design professionals must understand the changing needs of their clients to effectively operate in today's economically driven business climate. That was the message delivered by several prominent corporate clients speaking at the International Design Conference held in late May in Jackson Hole, Wyoming.

Conference co-sponsors Bob Black of Steelcase and Geoff Colvin of *Fortune* magazine urged interiors professionals to seek a better understanding of business leaders and their corporate goals. Economic concerns have increased the pressure for smaller headquarters and "hoteling"; some companies don't want to be perceived as making major investments in office design, while others opt for less real estate.

Such changes in workplace values have caused anxiety among design professionals. But as conference participants emphasized, these trends also call for more efficient space-planning. The need for flexibility in reconfiguring spaces and providing increased computer access will remain facilities management priorities for the foreseeable future, creating ample interior design opportunities.

Geoff Colvin cited Cesar Pelli & Associates' Owens Corning headquarters in Toledo, Ohio [RECORD, June 1997, pages 152–56] as exemplary—an interior environment whose design was driven by a CEO's ideas about space and management style.

SHAKESPEARE'S THEATER REOPENS

After nearly 30 years of delays, London's Globe Theatre, where many of Shakespeare's plays were first performed, reopened in May. Neither the new Globe's architect, Theo Crosby, nor its main promoter, actor Sam Wanamaker, lived to see the project completed.

The new Globe theater occupies nearly the same Thames site as the original, which burned to the ground in 1613 during a performance of *Henry VIII*. The theater has 1,500 seats—about half the number in the original—and was built using 17th-century construction methods and materials.

Crosby and master carpenter Peter McCurdy framed the O-shaped structure in native green oak that was supple enough to bend into a circle yet dense enough to resist fire and warping. Workers handcrafted each beam, then attached them using mortise and tenon joints and tapered wooden pegs, the techniques used by earlier builders. Between the posts and beams, the carpenters inserted oak staves smeared with lime plaster and goat



hair. The new Globe is the first thatched-roof structure to be built in London since the Great Fire of 1666.

The theater provides actors and audiences an opportunity to experience Shakespeare's plays in the space for which they were written. The theater includes a thrust stage with a simple canopy, but no microphones, special lighting, or elaborate sets. Crosby believed that by providing conditions similar to those of the original, the reconstructed theater would allow for new insights into the playwright's work.

The theater is the centerpiece of the planned $50 million International Shakespeare Globe Center, which will contain an education wing, a museum and a smaller, 333-seat theater, based on a design by Inigo Jones. The complex is expected to be completed by 2000. *David Dillon*

ARCHITECTURAL PRESS ROUNDUP

SMELLING THE ESPRESSO IN KANSAS CITY

The Kansas City Star, June 1, 1997 Barbeque afficionados make pilgrimages to Arthur Bryant's for ribs, but no one in decades has been hit with a craving to hang out in downtown Kansas City after dark. Looking to bring life to the central business district, a developer called Centertainment has unveiled plans to transform 11 1/2 blocks into an entertainment, retail, office, and residential complex. Scott Cantrell, the *Star*'s architecture writer, calls the design for a Plaza of Light "cheesy, generic, theme-park architecture." "Enough, already, with the retro.," he continues. We're on the brink of the 21st century, and it's high time Kansas City stopped living in the 19th. The stockyards are gone, along with Emery Bird Thayer, the Country Club Trolley and the legendary jazz clubs. Wake up and smell the espresso. Here's a wonderful opportunity to make a bold and challenging—but playful—statement . . . let's put up some real architecture."

I'LL DRINK TO THAT

The Wall Street Journal, May 28, 1997 Looking at the new EMC Insurance Building in Des Moines, Iowa, some people think the architects must have been hitting the bottle. You see, the 20-story office tower has a cylindrical protrusion running up 12 floors of its south facade and a narrower, four-story recess above that, creating—at least in the eyes of some observers—the image of a giant Absolut vodka bottle. According to an article by Christopher J. Knight, "William Anderson, a partner with Brooks Borg Skiles Architecture Engineering, which designed the building, insists the resemblance was not intentional." While denying even any subliminal copying, Anderson said, "he wouldn't mind seeing the work in an 'Absolut Des Moines' ad someday." The next thing you know they'll want their own Gap ad.

NOTHING UP HIS SLEEVE

Dayton Daily News, April 28, 1997 In an article examining the need to design prisons for an aging population of inmates, the newspaper says, "Good architectural design always involves spending time with the client or user of the proposed building. It's just more challenging when the user is *doing* time." While prisoners, like the rest of the American population, are living longer, architects designing correctional facilities must go beyond complying with ADA requirements. "Take the case of a northern Ohio jail that booked a wheelchair-bound man. 'He had an artificial leg to the knee and was also elderly. They treated him with kid gloves,' said architect Harrison Spicer, facilities planner for the Ohio Bureau of Adult Detention. 'Then the son of a gun took the leg off, had a knife hidden inside, and injured one of the corrections officers. You just can't assume that even a handicapped individual is less of a risk.'"

ESCALATOR? WHAT ESCALATOR?

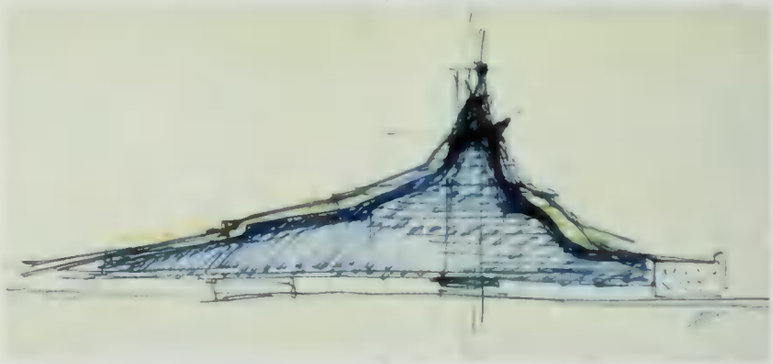
The New York Times, May 22, 1997 An exhibition at the Museum of Modern Art in New York presenting schemes for the museum's planned expansion includes background information on MoMA's original building and all of its additions—except for the one in 1984 by Cesar Pelli. According to the *Times* article, "When asked at the opening of the exhibition if he had noticed the lapse, [architectural curator Terence] Riley, said, 'Uh, oh.'"

GUNNAR BIRKERTS RETURNS HOME TO RIGA BY DESIGNING TWO MAJOR PROJECTS

When Gunnar Birkerts received a call from the city architect of Riga, Latvia, at his Bloomfield Hills, Mich., office in 1988, he listened carefully to what the official had to say. Birkerts was born in Riga and knew that his countrymen, long under the thumb of the Soviets, were astute communicators of coded messages.

As it turned out, the spoken offer he received was to design a huge new National Library in Riga. The unspoken message was that the building should be a symbol of the freedom for which Latvians yearned. The call came three years before Latvia would become an independent republic. "I grew up with this," Birkerts explained. "[I understood] they could express themselves in a building."

The architect designed a metaphor for independence that needed no explanation. "Everyone understood it right away," he said. The building resembles a glass mountain, bringing to mind a Latvian fable in which a princess, representing freedom, is saved when her suitor rides up the mountain.



Sketch by Gunnar Birkerts of his design for The National Library in Riga, Latvia.

Birkerts left Latvia after World War II when he was 19. He studied architecture in Stuttgart, Germany, and eventually came to the United States, working for Eero Saarinen and later Minoru Yamasaki before opening his own office. He returned to Latvia only to visit his mother, who remained there until her death.

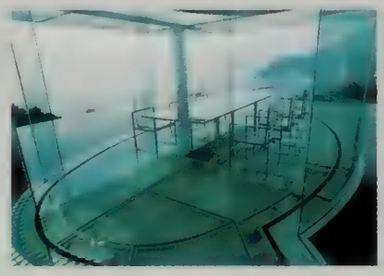
The library will be on an underdeveloped bank of the Daugava River, across from 18th- and 19th-century buildings of old Riga. The $100 million building, which goes into construction next year, will consolidate the five and a half million volumes now scattered among 10 buildings throughout the city.

The collection will be housed in closed stacks high up in the center of the facility, and books will be electronically retrieved and delivered within 30 minutes to reading rooms on the north side. The 500,000-sq-ft building will have the capacity for eight million books.

The library was Birkerts's first commission in his native country. A second soon followed: a conceptual master plan for Riga's Central Warehouse District, also on the Daugava River. Birkerts's proposal is for a 28,000-sq-ft "Crystal River," a series of buildings that would flow between the historic buildings and above public areas, creating space for new offices, restaurants, and other facilities.

Birkerts has waited nearly a decade to see the library approach construction. As the country's economy is still struggling, the project is being supported by the government through a series of special excise taxes and through contributions from European and Scandinavian countries.

For Birkerts, the two commissions have a special meaning. "It's an emotional moment," he said. "It's coming home. It's recognition." *Cheryl Kent*



DU PONT HONORS CREATIVE USE OF GLASS **Kengo Kuma & Associates, Tokyo, was awarded first place for a residential project in the 1997 Du Pont Benedictus Awards for Innovation in Architectural Laminated Glass. The firm's entry, the Glass Villa (above), in Shizuoka, Japan, consists of three glass pods linked over water by glass bridges and stairways. Glass furnishings designed by the architects allow for an unobstructed view of the Pacific Ocean.**

First-place winners for commercial work were Rafael Viñoly Architects and associated Japanese firms Masao Shiina Architects and GKK Architects & Engineers for their $1.6 billion Tokyo International Forum, with its extensive use of laminated glass in exhibition spaces.

The competition, which also awarded cash prizes for winning student entries, was sponsored by Du Pont and AIA's American Institute of Architectural Research, with help from the Union of International Architects. The jury included Patricia Patkau, FRAIC, Canada; Hugh Newell Jacobsen, FAIA, United States; and Christian de Portzamparc, Hon. FAIA, France.

BOTANICAL GARDEN HALTS RADIO TOWER, CITING ADVERSE AESTHETIC EFFECT

Sparks are still flying between the New York Botanical Garden and Fordham University over the school's partial construction of a 480-ft radio tower on its Bronx, New York, campus. In May the Federal Communications Commission (FCC) ruled that the 45-story tower would have an adverse effect on the gardens by introducing a visual element out of character with the property and asked the two sides to work out an alternate plan.

The federal decision cited Section 106 of the National Historic Preservation Act, noting that the "area is significant because visitors are drawn to the property by the aesthetic appeal of the Garden's flora and the Conservatory's unique and historically significant architecture."

The decision does not end the static that arose with the tower in 1994. In its original FCC application, Fordham failed to disclose that the tower would be located across from a National Historic Landmark, thereby avoiding an environmental assessment and expediting its FCC construction permit.

In late 1996 the Botanical Garden proposed a flagpole structure designed by Polshek and Partners (below) as a less costly, more aesthetic alternative to Fordham's original design. The antenna is supported between two tapered, 185-ft steel monopoles in a cylindrical "radome" enclosure, where it is concealed and protected from ice accumulation. Depending on the viewing angle, the tower would appear as a double or a single flagpole.

Mediation talks with the two prominent nonprofit institutions, the FCC, and federal and state preservation agencies were scheduled for June at the FCC's Washington headquarters. Stay tuned. *Barbara A. Nadel, AIA*







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NEWS BRIEFS

New director leads design school Neil M. Denari was named director of the Southern California Institute of Architecture (SCI-Arc), succeeding Michael Rotondi, director since 1987. Denari, educated at Harvard and now principal of the Los Angeles–based Cor-Tex Architecture, has taught studio classes at SCI-Arc for the past nine years. His work with Cor-Tex has included exhibition designs for Columbia University, the Museum of Modern Art–Sydney, and the Japan Association for the Promotion of Events. He is currently working on the renovation and master plans for the Arlington Museum of Art in Arlington, Tex. Denari is the third director since SCI-Arc's founding in 1972.

Department store stocked with books The Southwestern University School of Law Library recently opened in the former Bullock's Wilshire department store in Los Angeles (above). Ronald Altoon, FAIA, of Altoon + Porter Architects, designed the $10 million adaptive reuse of the original Art Deco building by Parkinson & Parkinson. The law library includes reading rooms, study carrels, and open stacks. Altoon + Porter passed up the opportunity to design a new facility in order to restore one of the few remaining historic buildings in L.A.





Before and after: Bullock's Wilshire, and Altoon + Porter's Southwestern University School of Law Library.

Holocaust Museum chooses Moshe Safdie The Yad Vashem Holocaust Museum expansion and reorganization project will be designed by Moshe Safdie and Associates, who were selected in a three-stage competition. The program increases the museum to five times its current size and reorganizes the public circulation throughout the 58-acre site. Safdie's winning design calls for a new entry building, connected by a steel bridge to the museum, which consists of galleries organized along a spine that penetrates the hillside from end to end. Also in the final stage of the competition were Avraham Yaski Architects and Planners, Tel Aviv; and Jack Diamond, Toronto, in association with Kolker, Kolker and Epstein, Jerusalem.

Playing with food, helping others The city of New Orleans recently hosted the first national CANstruction competition, in which architects and engineers built structures out of canned and boxed foods. Part of a benefit to provide meals to people in need, the structures were judged in categories such as structural integrity, best use of labels, and best meal. Among the award winners were Hellmuth, Obata & Kassabaum, for their re-creation of a New York City taxicab, including pie-crust hubcaps and a sardine grille. The competition, for both students and professionals, began in 1992 when a group of architects sculpted the state of Washington from canned goods they had gathered for a food drive sponsored by the Society of Design Administration.

RIBA medal goes to Ando The Royal Institute of British Architects presented Japanese architect Tadao Ando with the 1997 Royal Gold



Medal for Architecture. Conferred annually by the Queen, the medal honors those who have promoted, directly or indirectly, the advancement of architecture. Ando, a largely self-taught architect, is based in Osaka. Although most of his works are in Japan, he has received international honors; he is an honorary fellow of both the RIBA and the AIA. Citing his Chapel on the Water (Komamu) and the Church of the Light (Osaka), RIBA called Ando a "creative rebel" and an "architectural hero." Frank Lloyd Wright, Le Corbusier, and Renzo Piano are among other architects who have received the award, which was inaugurated by Queen Victoria in 1848.

Working harder and getting less Despite solid gains in productivity, fee levels for design firms have improved little, according to the recently published twelfth edition of the PSMJ Design Services Fee Survey. Because of the traditional hourly labor charge model, productivity gains seem to have a negative impact on design firms, forcing them to work harder in the long run to keep revenues up. The PSMJ recommends that firms move away from the hourly charge model, noting that fee levels are not in line with current inflation rates. "Since hourly rates are now only about even with pre-1990 rates, when inflation is factored in, real hourly rates are well below the late '80s level," said William Fanning, director of Research at PSMJ Resources.

Denver Library gets temporary interior transformation For the Denver Summit of Eight, held on June 20–22, the Denver Library was transformed into a world-class meeting venue. The metamorphosis, by the Denver-based architecture and design firm RNL Design, included custom carpeting, a custom meeting table, special meeting room lights, and the creation of a reception area outside the Rotunda meeting room and a dining area. RNL also supervised the return of the library to its original state following the summit meeting, which was attended by President Clinton and leaders from the United Kingdom, France, Germany, Italy, Canada, Japan, and Russia.

Plainfield Town Center Design Competition winners The team of Richard H. Schaupp of Cooper, Robertson & Partners and Michael M. Franck of Allan Greenberg Architect won first place in a competition to provide a development plan for Plainfield, Ill. Looking to expand the downtown area across the DuPage River, the village had hosted the competition for professional design firms and student teams.

Environmental design recognized The Portland, Ore., AIA chapter, the Bonneville Power Administration, and the Battelle Conference Center recently sponsored the fifth annual Architecture + Energy competition in Seattle. Mithun Partners, Inc., Seattle, took the top award for REI's flagship store, notable for its vast interior volumes, energy-efficient design, and sustainable materials. Other winners included the F. W. Olin Science Center in Salem, by Soderstrom Architects, Portland; the City of Portland's Water Pollution Control Laboratory by SERA Architects, Portland, and The Miller/Hull Partnership, Seattle; Portland architect Mark Garvey's Widmer Brothers Brewing Company Expansion; and Portland's Pacific Gas Transmission Headquarters by Group Mackenzie, Portland.

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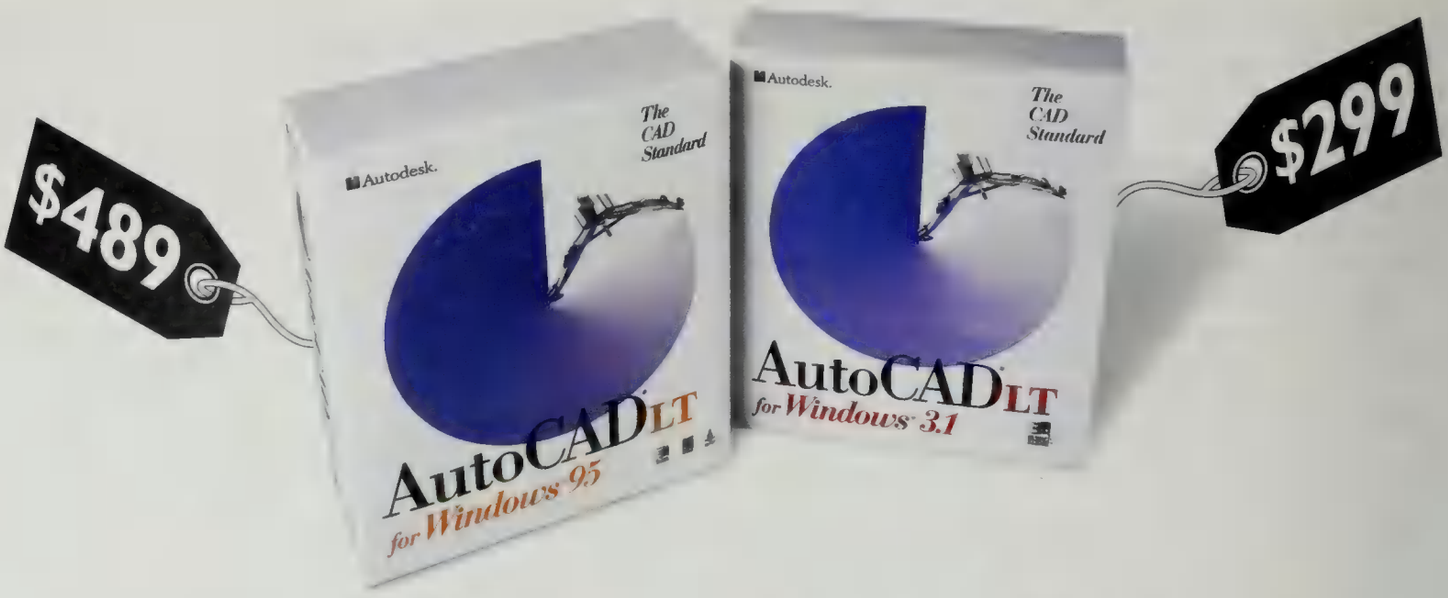
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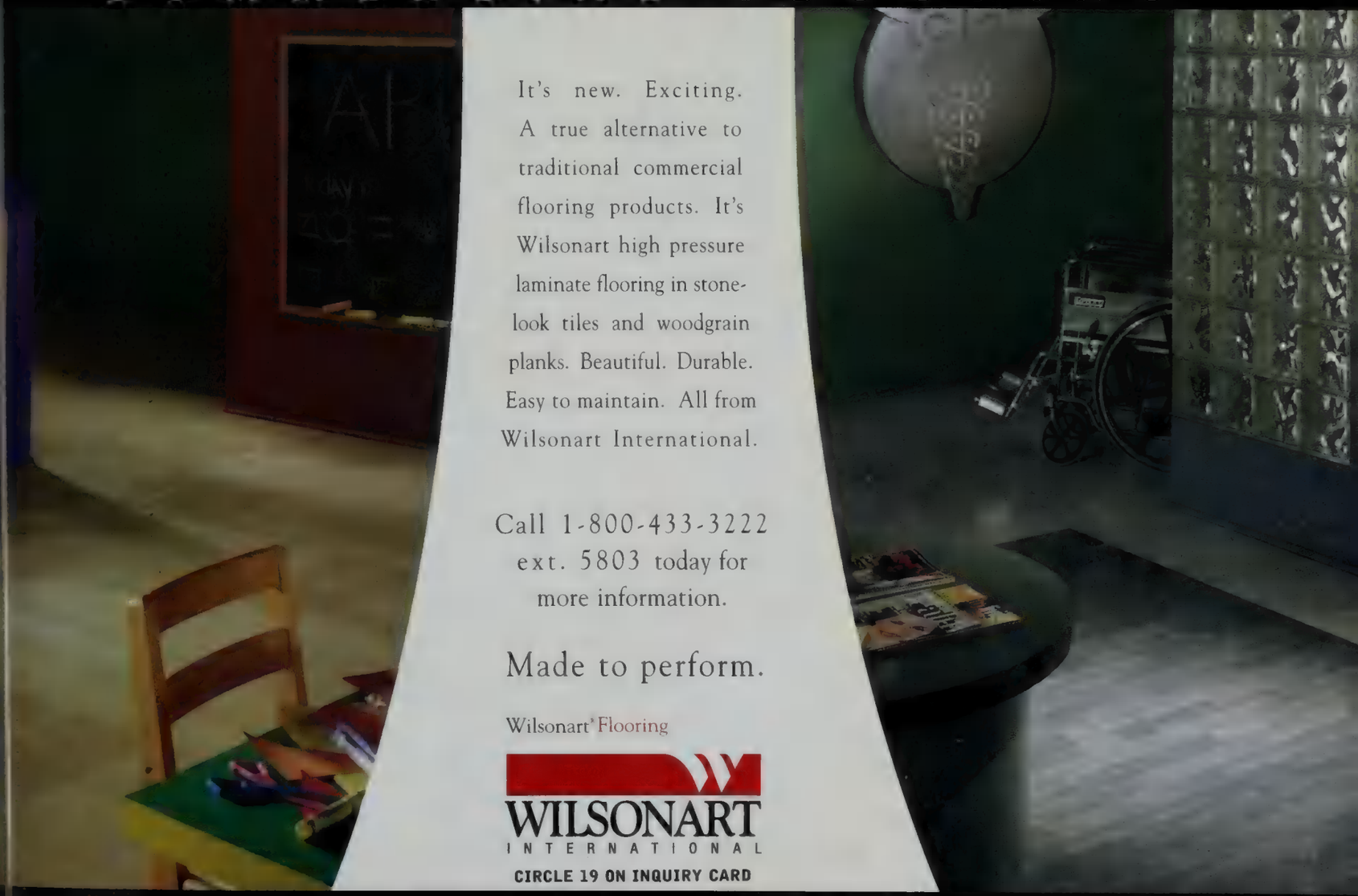
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Calendar

Through July 31
Max Protetch Gallery
New York City
Architectural drawings from the early and late works of Frank Lloyd Wright are on view. Call 212/633-6999.

August 8–10
AIA Chapter Headquarters
Seattle, Washington
The Fourth Annual Diversity Conference, "Beyond the Rainbow: Changing Views," unites architects, designers, students, educators, AIA leaders, and allied professionals in an exercise to expand mutual understanding, explore cultural issues, and activate an appreciation of diversity in the people and policies of the AIA and the profession. For more information, call Jean Barber at the AIA at 202/626-7305.

Through August 10
Wexner Center for the Arts
Columbus, Ohio
The traveling exhibition "Viewing Olmsted: Photographs by Robert Burley, Lee Friedlander, and Geoffrey James" examines work by the most influential landscape architect of the 19th century. Call 614/292-0330.

August 14–16
San Jose Convention Center
San Jose, California
Alternative workplace issues concerning people, technology, and environments in the corporate and home office will be addressed at the alt.office conference and exposition. Furniture and office products will be on view. For more information, call 800/950-1314 or visit http://www.alt.office.com.

August 24–January 11, 1998
Design Exchange
Toronto, Canada
Green Transportation for the [illegible] investigates new materials, technologies, and design innovations that have the potential to alter transportation conventions. Call [illegible].

August 24–2[illegible]
Toronto, Canada
The International Council of Societies of Industrial Design (ICSID) will focus its biennial conference on the "Humane Village," with the hopes of offering a new perspective on how design can help shape a more compassionate society. Call the Design Exchange at 416/216-2124 or E-mail dx@pathcom.com.

Through August 29
The Skyscraper Museum
New York City
"Downtown New York: The Architecture of Business/The Business of Architecture" is the inaugural exhibition at the Skyscraper Museum, 44 Wall Street. Curated by architectural historian Carol Willis, who founded the museum, and designed by architect Lynne Breslin, the show looks at historic and contemporary examples of the building type. Call 212/968-1961.

Through September 12
Municipal Art Society
New York City
The streetscape of New York City may take on a new character, once plans to award a franchise for new street furniture are completed later this year. The "21st Century Streetscape" exhibition will include full-scale objects and photos of contemporary examples. Call 212/935-3960.

Through September 14
Whitney Museum of American Art
New York City
"Frank Lloyd Wright: Designs for an American Landscape, 1922–1932," a traveling show, examines five unbuilt proposals, through original drawings, newly built models, and computer reconstructions. Call 212/570-3600.

September 15–22
London, England
The AIA's London/UK Chapter is sponsoring a seven-day program of tours and lectures in the city. Contact Norvista at fax 800/526-4927.

September 17–19
Fairmont Hotel
New Orleans
The AIA Committee on Architecture for Justice and the American Jail Association are sponsoring "IDEAS/2001: Jail Innovations for the Third Millennium." For more information, call David Roccosalva at the AIA at 202/626-7418.

September 26–28
Prague, Czech Republic
The Continental European Chapter of the AIA is sponsoring a low-cost, three-day program of talks and guided tours on architecture and urbanism in the Czech capital. Contact Martina Tomasovicova at fax 420/2-265-702.

Through November 30
Hollyhock House
Los Angeles
Institutional, commercial, and residential work by Steven Ehrlich Architects of Santa Monica, Calif., is on view. Call 213/913-4157.

Competitions

A competition for the design of a **sun shade structure** on Pier 54 at 13th Street in Manhattan is sponsored by the Young Architects Group of the AIA New York Chapter, the Van Alen Institute, and the Hudson River Park Conservancy. The sponsors hope to build a portion of the winning design as an interim improvement on the site, which sits within a proposed waterfront development. Individuals and teams who have received a degree in architecture or related design programs in the past 15 years may participate. The registration deadline is July 31; entries are due September 2. Contact 212/683-0023, ext. 23.

Upcoming deadlines for the **1998 AIA Honors and Awards** program are: Honor Awards for Architecture (entry deadline August 1, submissions due September 5); Twenty-five Year Award (submissions due September 5); Honor Awards for Interiors (entry deadline August 22, submissions due September 19); Honor Awards for Urban Design (entry deadline September 12, submissions due October 10); Fellowship (submissions due October 24). Call Robin Lee at the AIA at 202/626-7390.

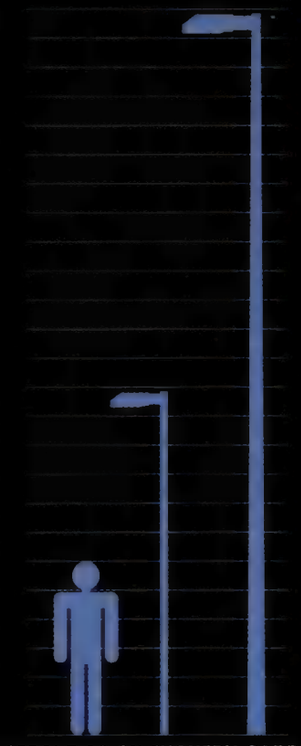
The Boston Society of Architects invites entries in **Unbuilt Architecture**, an annual program open to practitioners, educators, and students. Submissions are due August 21. Submit entries to Unbuilt Architecture, Boston Society of Architects, 52 Broad Street, Boston, Mass. 02109-4301. Call 617/951-1433, ext. 232.

The **Shinkenchiku Residential Design Competition 1997**, an annual competition sponsored by *The Japan Architect*, will be judged by Swiss architect Jacques Herzog of Herzog & de Meuron. The theme is "House of Collaboration." Entrants are asked to work in collaboration with an artist or art student to draw an exhibition space for contemporary art for any site. Use two *(continued on page 153)*

Genetic Engineering!



In the world of architectural lighting, fixture scale is as important to the site as genetics is to real life. That is why the most advanced cutoff luminaire, The Archetype®, is offered in two sizes. For parking lots and roadways, the large Archetype (AR) is scaled for mounting heights up to 35′ using all HID lamp modes from 150W to 400W. As you transition from larger spaces to pathways and courtyards, the small Archetype (SAR) maintains a cohesive look while downsizing to a pedestrian scale. The small Archetype is sized for poles up to 14′, uses all HID lamp modes from 70W to 175W, and is proportioned exactly to the large model. Both luminaires carry the same traits, including rugged die cast construction, sealed optics, no-tool lamp and ballast access, and four high performance light distributions. Features like these can't be cloned, because there is only one Archetype. With installations all over the world, The Archetype continues to redefine architectural outdoor lighting.



CIRCLE 18 ON INQUIRY CARD

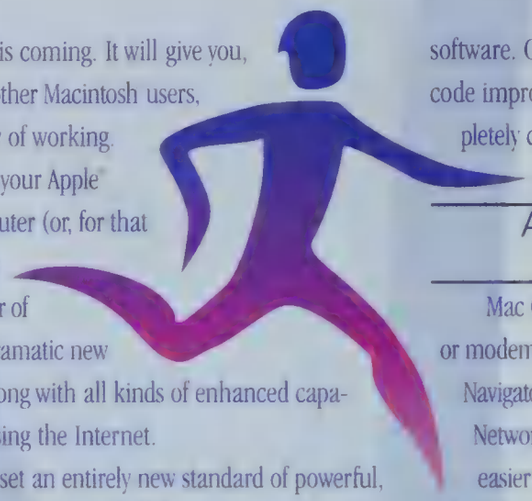
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The Mac OS Report

Number two in a series—the facts about Mac OS 8



Mac® OS 8 is coming. It will give you, and millions of other Macintosh users, a whole new way of working.

It will give your Apple® Macintosh computer (or, for that matter, any other Mac OS computer of your choice) a dramatic new look and feel, along with all kinds of enhanced capabilities for accessing the Internet.

It will also set an entirely new standard of powerful, intuitive computing—a standard the competition can try to catch up to. (Again.)

A new way of working

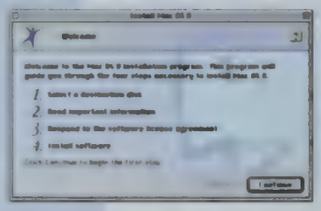
The moment you start using Mac OS 8, you'll feel the difference: you'll find yourself accomplishing more in less time. A multi-threaded Finder™ lets you execute multiple tasks simultaneously, such as launching applications and copying files. Mac OS 8 includes new information-management tools, such as contextual pop-up menus and spring-loaded folders, that give you quicker and easier access to all your information. A scalable environment lets you either limit your menu and window options, or expand them—whichever works better for you. A new, dimensional look makes the interface more dynamic and engaging than ever. And Mac OS 8 also includes the latest versions of QuickTime® with its MPEG support, QuickTime VR and QuickDraw™ 3D.



How easy is it to get going with all these new technologies and features? Very. Because our new installer and setup assistants take you through each step of configuring your new system software. Once you're up and running, PowerPC™-native code improves your performance. Mac OS 8 is also completely compatible with all PowerPC and 68040-based hardware and software.

A new way of accessing the Internet

Mac OS 8 includes TCP/IP and PPP for easy network or modem access direct from the Finder. You get Netscape Navigator,™ Microsoft® Internet Explorer™ and the PointCast® Network.™ And a new Internet Setup Assistant makes it easier than ever to get on the Net, whether you're doing it from home with a modem or from work with a high-speed connection. Personal web sharing is standard, so you can turn any Mac into an Internet web server. And Java™ support is built in, so you can run Java applications just as though they were any other desktop applications. (If you were wondering, Windows® 95 can't do this.)



And more advancements are on the way

Mac OS 8 is one of the most significant advances in OS technology ever. And it's just the beginning—additional upgrades are planned. And our support for the Mac OS will continue for years.

At the same time, we're also working on an industrial-strength OS, code-named Rhapsody, that will offer features such as protected memory, preemptive multitasking and symmetric multiprocessing. Rhapsody will also provide backwards compatibility, so you can be sure that the vast majority of your Mac OS apps will run on Rhapsody, too.

In other words: Apple is still developing the most innovative, user-friendly and consistently superior products on the market. That's one part of our system that won't change. To learn more, visit www.macos.apple.com.

If you want to use Netscape Navigator to browse the Net, you'll like this: it's an integrated part of Mac OS 8.

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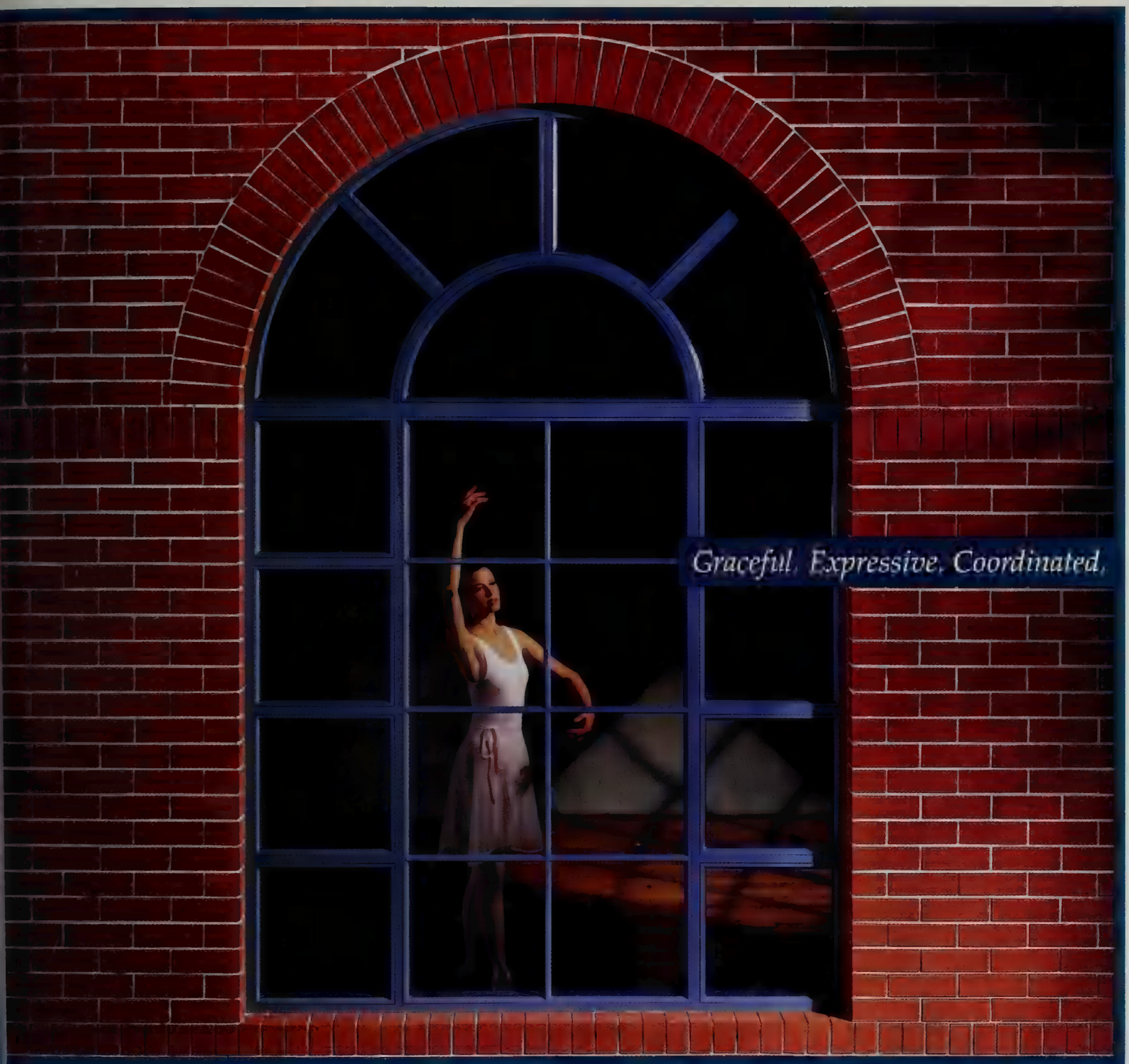
It's the PointCast Network. It comes with Mac OS 8. And it grabs the news you want directly off the Net to create customized desktop news pages. Daily. Hourly. As often as you want.

When you get Mac OS 8, you also get built-in Java support, so you can run both local and network-based Java software just like other desktop applications.

Mac® OS

Mac OS has always been the easiest and most intuitive of all operating systems. Now, Mac OS 8 brings this kind of computing to a whole new level.

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CIRCLE 17 ON INQUIRY CARD

OUR WINDOWS ARE MADE FROM WOOD. AND SOMETIMES



When architect Bill Becker redesigned this summer retreat in the Berkshire Mountains, the home's setting provided all the inspiration he needed. He used native wood and stone extensively. Fashioned the front porch supports from 8" logs. And for the north end of the home, which looks out over a lake to the mountains beyond, he created a wall of glass using windows and doors with custom-designed muntins that echo the shape of the surrounding pines. Who did he contact to supply these unique products? Bill Becker's search began and ended with one phone call. To Marvin Windows & Doors.

From Bill's drawings, the company produced three large fixed windows and eight doors, three of which open onto the deck. Marvin's ability to create these custom products inspired similar design elements in the home's interior, including a rustic stairway made from pine logs and branches. Still, as unique as they are, these aren't the only Marvin windows that figured prominently in the design.



To double the home's square footage without violating local zoning codes or overwhelming the surrounding cottages, Bill skewed the second level off the long axis of the first floor by seven degrees to create the illusion of a dormer. Marvin windows which step down in height help further the illusion. And to optimize their energy efficiency, these

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CIRCLE 20 ON INQUIRY CARD



What is sacred space? Steven Holl's CHAPEL OF ST. IGNATIUS answers with texture, light, and color.



by Sheri Olson, AIA

When clouds pass over, the light pulses," says Steven Holl, AIA, of the interior of the Chapel of St. Ignatius at Seattle University (SU). The scheme is deceptively simple: Holl refers to it as "a stone box, containing seven bottles of light." What makes the interior so arresting and enigmatic are the halos of softly pigmented light sliced through by shocking patches of otherworldly color. The effect, mysterious itself and made more so by the constant variations of light as clouds move across the sky, requires several visits to the chapel to grasp its permutations. "One professor told me, 'I'm not a believer, but this is my third visit to the chapel in two days,'" reports the Reverend Jerry Cobb, chair of the university chapel committee. "People of all faiths, or no faith, experience it as a compelling spiritual space."

"The chapel is the fusion of a spiritual and an architectural notion," says the Reverend William J. Sullivan, president emeritus of SU and the project's driving force. St. Ignatius of Loyola, the Jesuit founder, saw spiritual life as internal lights and darknesses—what he called consolations and desolations. "St. Ignatius's biographical writings inspired me," says Holl. "He uses the metaphor of a light that comes from above."

Holl translated St. Ignatius's imagery into a dramatic roofscape of light scoops that emerge from an inscrutable concrete box. "By designing a building without a lot of openings, relying instead on light scoops to bring in the outside world, Holl created a reverential space for an urban setting," says Sullivan. The chapel is the first building to interrupt the existing street grid that rules the surrounding campus. This places it—practically and metaphorically—in the center of what will become a large new quadrangle (see site plan) and creates the potential for an esplanade anchoring a new lower mall.

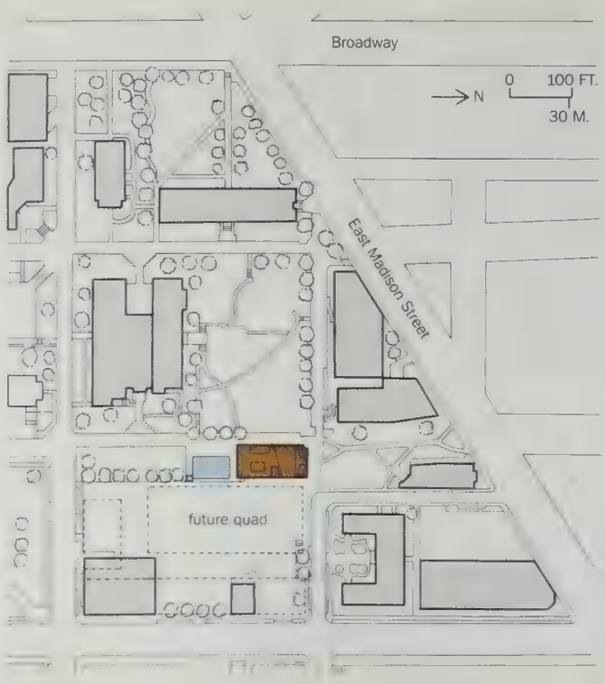


It's surprising that the Manhattan-based Holl's first major completed public building in the United States is for a small university in the Pacific Northwest. "This is directly attributable to the vision of Father Sullivan," says Cobb. "He wanted to make a significant architectural gift to the city." The chapel is the culmination of the president emeritus' 20 years at SU, which in its 105-year history had never had a freestanding place of worship. Sullivan envisioned a provocative project that would put the school on the map. As part of the selection process, Holl, a Seattle native, along with Moshe Safdie, Bohlin Cywinski Jackson/James Cutler Architects, and Dagit Saylor, was invited to lecture on creating sacred spaces. "The large crowds that turned out when Steven spoke told us that this is someone people are paying attention to," recalls Sullivan of the decision process.

Church building committees are notoriously contentious, and

Sheri Olson, AIA, is a writer and architect based in Seattle. She is a regular contributor to RECORD on design and technology.

Project: *Chapel of St. Ignatius, Seattle University Seattle, Washington*
Architect: *Steven Holl Architects—Steven Holl, AIA, principal-in-charge; Timothy Bade, project architect; Justin Korhammer, Jan Kinsbergen, Audra Tuskers, project team*
Associate Architect: *Olson Sundberg Architects—Rick Sundberg, FAIA, Tom Kundig, principals-in-charge; James Graham, project manager; Janice Webb, team member*
Engineers: *Datum Engineers (structural/schematic phase); Monte Clark Engineering (structural); Abacus Engineered Systems (mechanical/electrical/plumbing)*
Consultants: *Bill Brown, AIA (liturgical); L'Observatoire International (lighting); Peter George and Associates (acoustical)*
General Contractor: *Baugh Construction*



Anchored by a slender 52-ft-high bell tower clad in a preweathered zinc (bottom), the chapel's processional route is extended into the campus by a subtly sloped ramp that runs along the 6-in.-deep reflecting pool. The tower's two bronze bells were cast in Anney-le-Vieux, France.





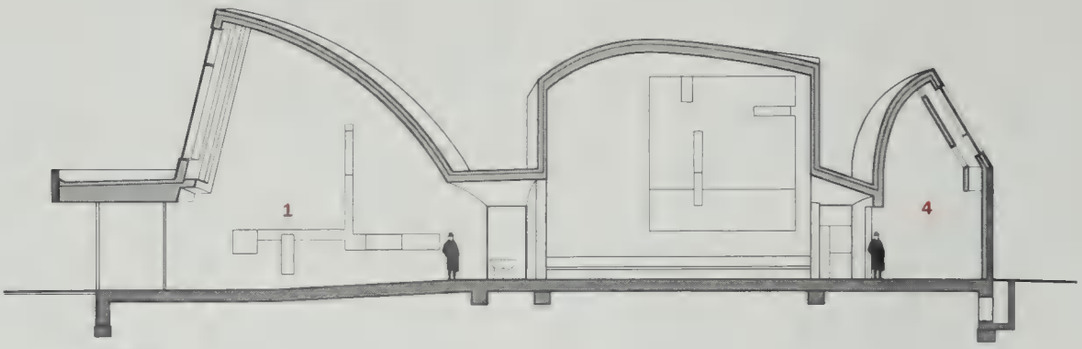


this one experienced its share of differences regarding liturgical interpretation and the resulting architectural implications. Holl found the input from students, gathered over five meetings, to be helpful in resolving issues. "At a time when the campus ministry was moving toward worship-in-the-round, the students were instrumental in helping to make the procession a major aspect of the plan," recalls Holl. The students "also wanted real pews [whereas] the campus ministry wanted chairs, like a lounge."

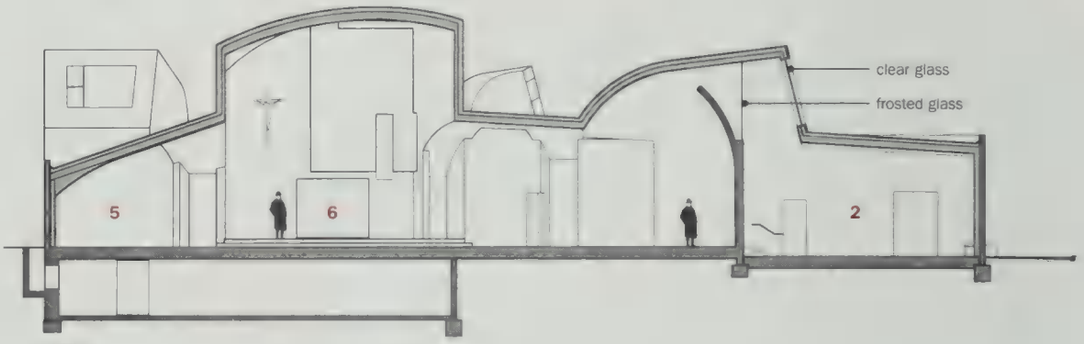
A slender metal-clad bell tower marks the approach to the chapel. The processional route begins with a rectangular green to the chapel's south and continues up a subtly sloped ramp alongside a shallow reflecting pool. The route "symbolizes the transition from the outside world to the spiritual world," says Sullivan. Set into the pool is a box of wild grasses and a black basalt rock from that venerable State of Washington symbol, Mt. Rainier, which is barely visible from the site. The poolside wooden bench is already a favorite spot for outdoor studying, while the patch of lawn is overrun by Frisbee-throwing students.

The chapel's tautly planar profile and ochre concrete stain recall early Roman churches. Holl's original design used yellow Kasota stone, which proved too expensive and now is limited to window ledges and a bench at the chapel's west side. The $3.25 million construction budget—90 percent of which came through private donation—wasn't sufficient for the initial program of 10,000 sq ft, so the project was reduced to 6,100 sq ft. "Before, the 'bottles of light' were loose inside the frame, and this [reduction] helped to tighten up the scheme," says Holl of the plan's present incarnation, which was literally shrunk to fit. The light scoop volumes shear off when they intersect the perimeter wall, creating an irregularly scalloped edge along the roofline, intensified because of their compression into a staccato rhythm that alternates between swooping and soaring.

But the sense of transcendent space does not stop at the door. "The exterior does not fully prepare you for the interior," says Cobb. Holl explains: "Like a novel, the cover does not reveal everything." The monochromatic exterior is a foil for an explosion of color inside. Light passes through small, intensely colored glass lenses set within *(text continues)*



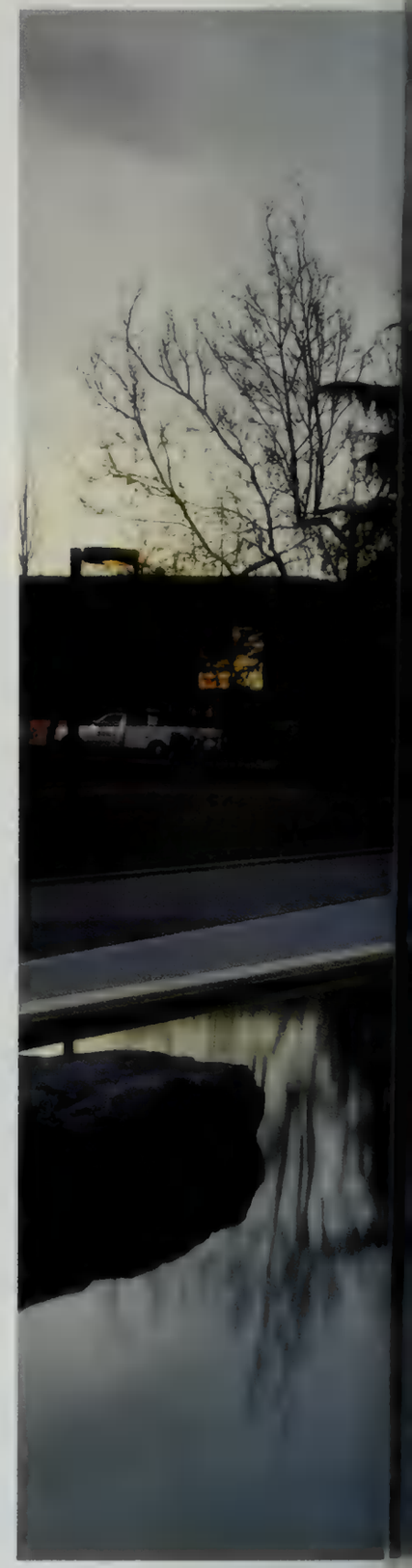
SECTION



SECTION



PLAN



1. *Procession*
2. *Narthex*
3. *Baptistry*
4. *Blessed Sacrament Chapel*
5. [illegible]
6. *Office*
7. *Reconciliation*
8. [illegible]
9. [illegible]
10. *Parking*
11. *Pool*



Drawings and photographs courtesy Architect

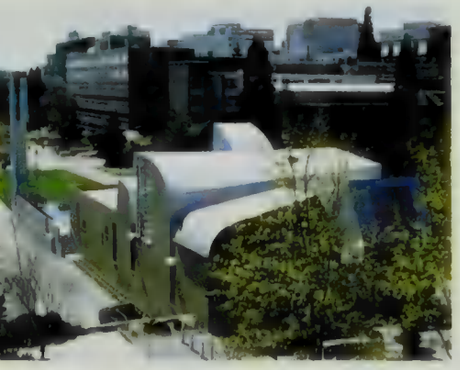


Holl's early concept sketch of the "seven bottles of light" (opposite) resembles the final result (above). At dusk, the chapel comes to life—important in a region where thick clouds are common. Lights on the interior of the scoops duplicate the effect of sunlight on the inside and dramatically reverse the daytime effect outside as colored light is projected into the darkening sky.

"The whole building was horizontal, then 24 hours later, like an apparition, it rose," says Steven Holl of the construction of the Chapel of St. Ignatius. Using tilt-up concrete panels, the process, akin to a modern-day barn raising, was such an event that Holl's office captured it on videotape.

The project's unique conditions required creative rethinking of this typically down-and-dirty construction technique. "We thought of this as job-site precast rather than tilt-up construction due to the level of finish required," says Chris Toher, project manager of Baugh Construction, the general contractor. The chapel's 21 concrete panels interlock like pieces of a giant Chinese puzzle box, adding another layer of complexity.

"The material realization of a project is crucial," maintains Holl.



The roofscape looking south (above) and the west elevation of some of the 21 concrete tilt-up panels (below).

Although Kasota stone was originally intended for the chapel's "stone box," he was intrigued by the possibilities of tilt-up, which is less expensive. He was inspired by R. M. Schindler's use of site-cast concrete for his 1922 Kings Road house in Hollywood, Calif. In that project, the spaces between wall panels are glazed, allowing light to filter inside. "The chapel is based on a similar idea; the windows are formed in the interlock of the tilt-up slabs," explains Holl. "It's a pure tectonic expression."

Unlike typical tilt-up construction, which is usually cast on a slab on grade, the chapel's panels were formed on top of precast hollow-core planks over the basement. Since the casting surface deflected slightly, the panels were cast face-up so that any unevenness would be located on their back side and therefore would not be visible. The surface of the wet concrete was smoothed with a steel trowel and finished with an acid-based ochre-colored stain.

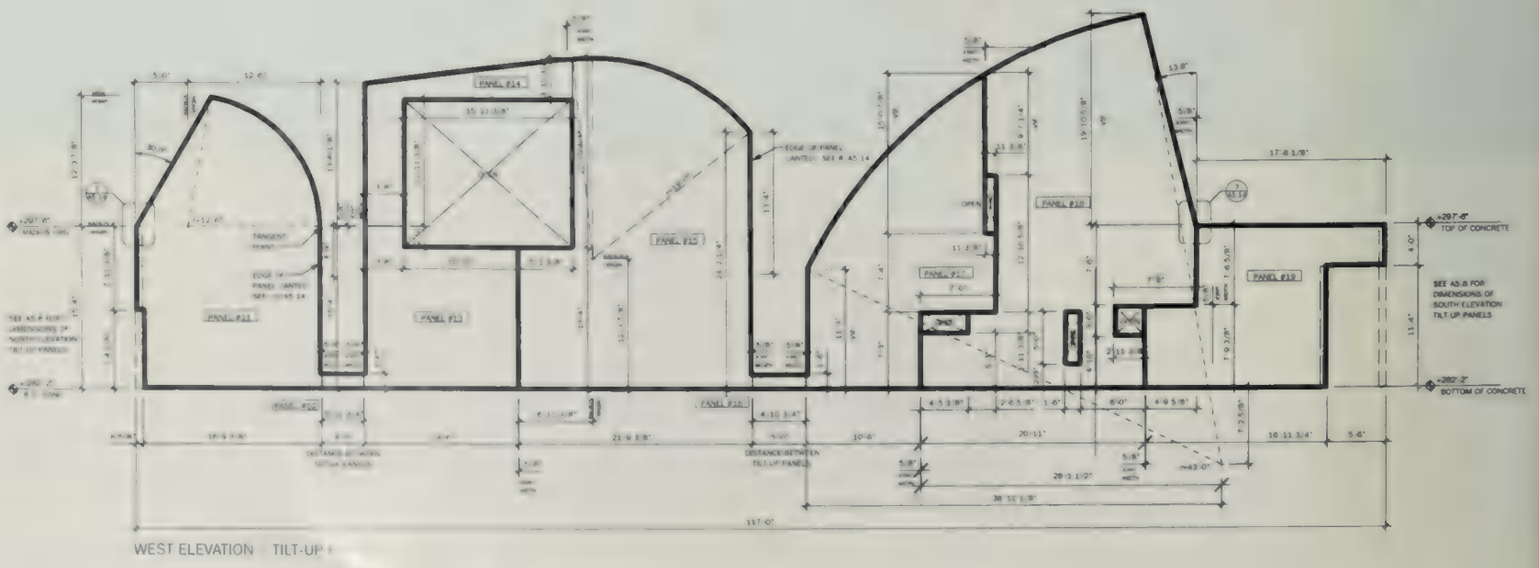
Because of the limited area available for casting, the panels were carefully laid out puzzlelike on the chapel floor. The bottom of the unfilled reflecting pool was also used as a casting area. Since the panels were cast wherever they fit, they couldn't simply be jacked up into place. Instead, the 8- and 10-in.-thick panels—some weighing as much as 78,000 lbs—were picked up, rotated, and positioned by hydraulic crane.





Panels were picked up flat by cables attached to at least four support points on the upper and lower portions of their face. Two cables were then attached to the top edge of the panel before the cables on the bottom portion were released, allowing the panel to go vertical. Since the panels interlock, proper sequencing was essential. The process also demanded precision with the crane so that edges were not chipped or cracked. "We handled those panels with kid gloves," says Toher.

To cover the holes left on the front of the panels by the pick-up points, Holl's office designed cast-



WEST ELEVATION TILT-UP





wanted materials that aren't slick or new looking, but show signs of age and history," says Bade. Because of the venting required to keep zinc from corroding, a 10-in.-thick roof assembly was necessary to fit layers of metal decking, rigid insulation, waterproofing, channels, plywood, and felt.

The chapel's curved ceilings were carefully checked during design to ensure that reflected sound would not focus at ear level. "Most of the focal points for sound reflected off of the ceiling fall below the floor level or well above head height," explains Bade. "This allows the reflected sound to be more evenly distributed throughout the space without areas of amplification or dead spots." Complete acoustic isolation of the distinct liturgical zones, however, is not possible without walls. For Mass, voices trained to project don't need to rely on the sound system that was installed just in case. "During hymns the space sounds wonderfully full even when the chapel is not," reports Father John Baldovin.





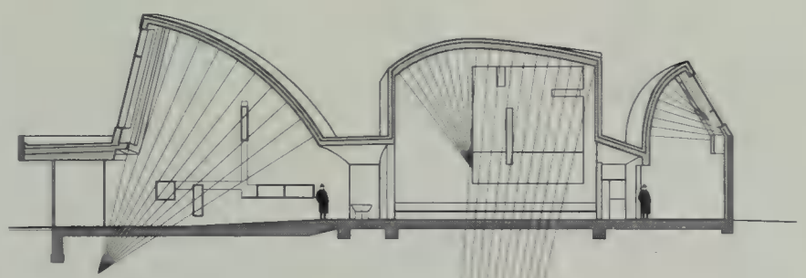
bronze point-plugs. After the first designs were rejected as "too potatolike," artisan David Gulassa cut a fishing line float in half to create a mold. A close look at the completed project reveals the wood grain of the float. "The plugs serve as traces of the construction method," says Holl, "and cast changing shadows on the walls."

"The most complex aspect of the chapel is the geometry of the structural steel roof framing," says Toher. "It involves 38 tons of steel, and the shop drawings took over four months to draw." The light scoops are formed using a curved steel-tube framing system Holl previously employed on the Stretto House in Dallas. The rolled pipe and tube sections allow elements to attach in multiple directions.

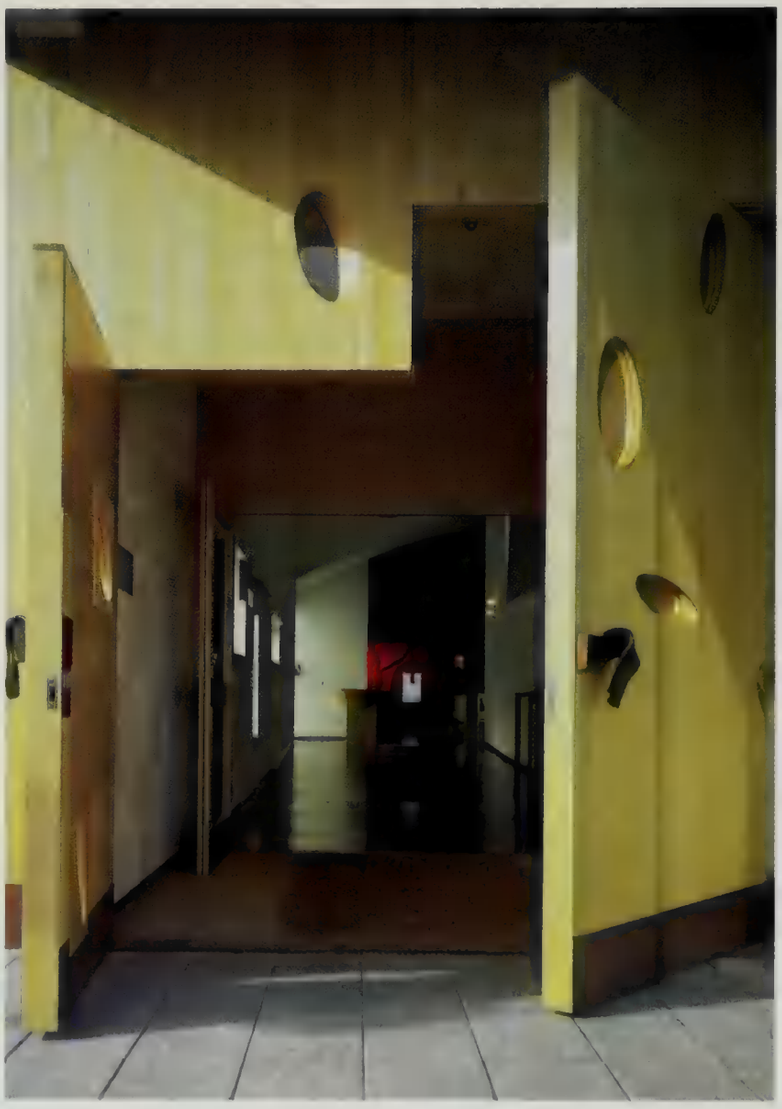
Timothy Bade, project architect at Holl's office, translated the roof form from a cardboard study model into an accurate computer model by plotting points in space. "What made this project particularly tricky is that the steel [roof] members are rarely horizontal or straight," says Bade. "This resulted in calculating the intersections of angled curved pieces . . . without an orthogonal structural grid while maintaining an accuracy of 1/16 of an inch."

The roof is supported at bearing pockets cast into the backs of the concrete panels. "It's a critical juncture where the two systems come together," says James Graham of Olson Sundberg. "Out of 256 'embeds,' only six were located incorrectly or missing," he says of Baugh's accuracy. For stability, the precast walls were braced until all of the roof's structural steel was in place, constricting work space.

The light scoops and bell tower are clad in Rheinzink, a preweathered solid zinc roofing material. "We



Interlocking panels form window openings. Bronze plugs cover crane pick-up points (above). A diagram shows the architect's acoustic analysis for the chapel's curved ceiling (right).





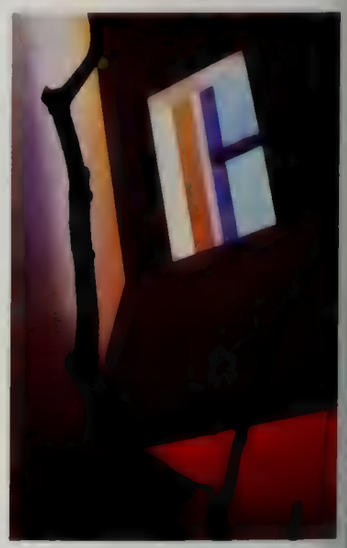
One of the pair of hand-carved Alaskan yellow cedar doors is oversized for ceremonial entrances (above).

the glazed mouth of each light scoop. Drywall-faced baffles coated with complementary Day-Glo colors retract and diffuse the colored light across the curved, stippled interior surfaces, concealing the source of illumination. The effect is reminiscent of Holl's offices for D.E. Shaw & Company in New York City [RECORD, June 1992, pages 114–19].

Each of the seven "bottles of light" corresponds to a specific liturgical space, highlighting the episodic nature of the prescribed path through the chapel. In the narthex, where people gather before and after each liturgy, for example, the light is bright and uncolored. On axis with the entry doors, the processional route, another "bottle," is defined by a high arch overhead and a shallow ramp leading to the baptismal font and the Blessed Sacrament Chapel beyond. The font acts as a hinge between the [illegible] communal gathering in the main sanctuary [illegible] the smaller chapel. It also helps to resolve the [illegible] the ground and a processional of discrete [illegible] two," explains Holl.

[illegible] light, a vista opens into the main [illegible] maximum height of 30 ft and is framed [illegible]. The tension between the orthogonal [illegible] and the ceiling creates a feeling of buoyancy as if the chapel [illegible] upward. Colors bounce off the highly polished concrete floor in unpredictable ways. Holl had the plaster finishers alternate the tooth of the veneer-plaster trowel for a visibly rough texture that catches light in irregular patches.

In the Blessed Sacrament Chapel, Seattle artist Linda Beaumont embedded gold-leaf prayer texts in the walls beneath ghostly layers of dripped beeswax; its sweet smell permeates the air. Making furnishings for the chapel within a chapel, Beaumont went beyond SU's original request, creating an artistic installation of the space itself. In the muted red light (the lens is purple and the baffle is painted orange), the onyx tabernacle containing the Eucharist bread softly glows. A twisted branch of a Madrona tree holds a lantern whose light is visible from busy Madison Street through a Holl-designed fused-glass window.

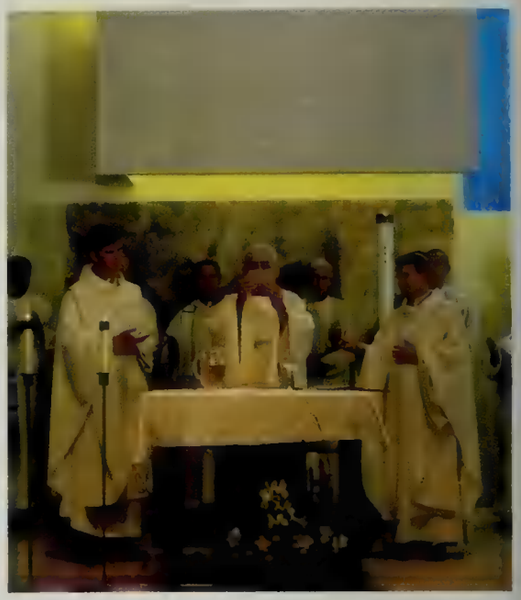


Similar attention to detail carries through the chapel, beginning with the cast-bronze handles of the cedar doors, which resemble the billowing folds of a priest's stole. Inside, liturgical furnishings—from wood pews to glass bottles of holy oils—are by Holl's office and were made by mostly local artisans. "Seattle has an incredible craft *(text continues)*



Beeswax walls of the Blessed Sacrament Chapel are by artist Linda Beaumont. Holl's window has the Seal of the Society of Jesus. A Madrona tree symbolizes life's struggles.





"We wanted the chapel to be a tactile and multisensory experience," says the Reverend Jerry Cobb of the scratch-coat plaster walls, cedar baptismal font (left), pews (below), and altar framed by gold leaf (opposite and above at the consecration).

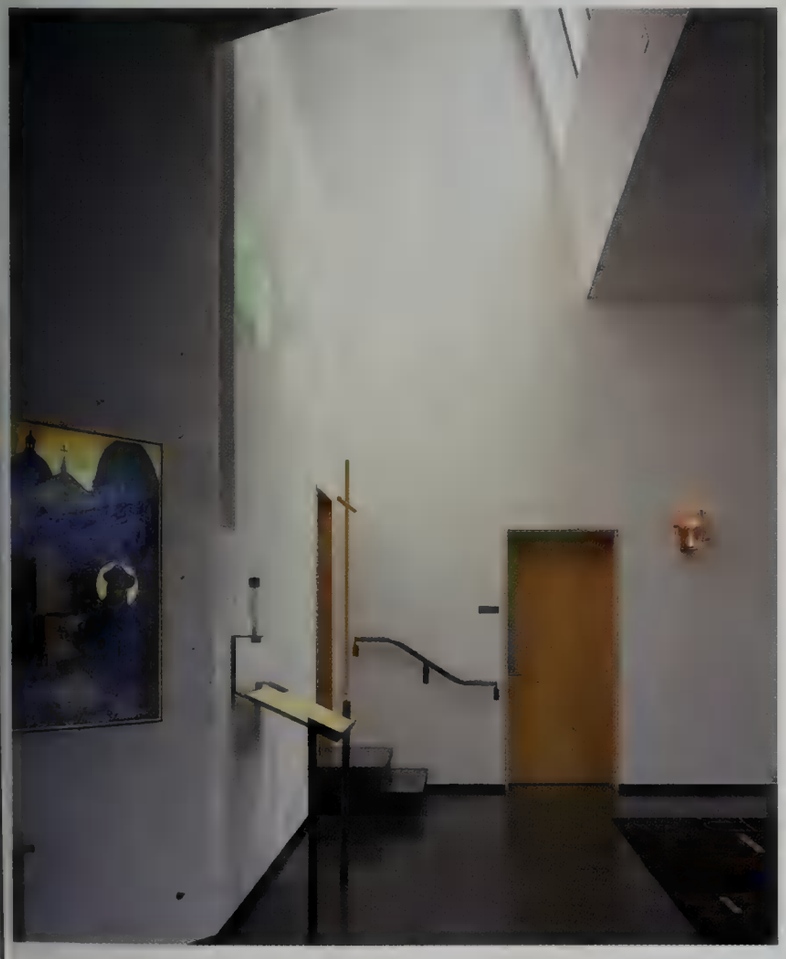






The dialectic of colors—one projected through a stained glass lens and its complement reflected off Day-Glo paint on the back of a baffle—in the Reconciliation Chapel echoes the back-and-forth between priest and student in St. Ignatius's spiritual exercises.





Holl designed the narthex carpet. Fused glass windows along the processional route are Holl's abstractions of St. Ignatius's four spiritual exercises.

capacity," notes Holl, who tapped local expertise for the blown-glass pendant lights in the main sanctuary and wall sconces throughout the project. To communicate the chapel's complexities to the building committee—and to potential donors—Holl built a model with a mirror hung underneath for a worm's-eye view of interior spaces. The model was purchased by New York City's Museum of Modern Art for its permanent collection.

Bridging the gap between design artistry and constructability was the focus of the collaboration between Holl and his associate architect, the Seattle firm of Olson Sundberg. Holl wanted his office to produce the construction documents and perform construction administration, but SU wanted a more fully involved local firm. In the end, Holl's office produced an unusually complete set of design-development drawings. The collaboration often revealed differences in the two firms' attitudes toward construction expression. "At times we would generate a detail that would not be in the spirit of their vision," says Tom Kundig, an Olson Sundberg principal. "For instance, we would show a reveal where the plaster meets the window frame, but Steven preferred them to butt right up to each other." Certain details proved particularly challenging for all, especially the butt-glazed corner in the narthex and the knife-edge along the top of the precast-concrete panels.

The chapel marks a critical moment in Holl's career as a series of high-profile projects—a major addition to the Cranbrook Institute of Science in Michigan and the Kiasma Museum of Contemporary Art in Helsinki—reach completion. Although traces of past projects are found in the chapel, it is a departure for Holl. For the first time, the meditative quality of light and space that characterizes his work is not just architectural expression but also program. Holl develops the sensory, perceptual, and emotional intentions of a project—what he calls phenomenology—through watercolors that he paints religiously every morning, part of a sketching practice begun as a student at the University of Washington in Seattle.

Holl's return home is causing a lot of excitement in a city that has a large number of architects if not significant new buildings. "The chapel raises the standard for Seattle architecture," claims Douglas Kelbaugh, a local practitioner and a University of Washington professor of architecture. "It should give some of the [area's] Microsoft millionaires something to think about." Just as the Reverend William Sullivan dreamed, the Chapel of St. Ignatius is generating heat as well as light. ■

Manufacturers' Sources

Structural steel roof, tubes: *United Iron Works, MKE Detailing*
Concrete pigment: *L.M. Scofield Co.*
EPDM roof: *Carlisle Syntec Systems*
Zinc "roof bottles": *Rheinzink*
Sloped glazing: *EverGreenHouse*
Windows: *Kawneer, Fleetwood Aluminum Products*
Glass laminating: *Northwest Industries*
Cast-glass lenses: *Doug Hansen*
Colored art glass: *Spectrum Art Glass*
Hand-carved entry doors, baptistry, altar furnishings: *Salmon Bay Millwork*
Vestibule doors, cabinetwork: *W.W. Wells*
Door pulls, metal finishes, metal work: *David Gullassa & Co.*
Integral-color concrete floor: *Emil's Concrete Construction Co.*
Scratch-coat plaster: *O'Malley Brothers' Plastering Co.*
Pews, presider's chair, cantor's stand: *Solid Visions, Inc.*
Exterior lighting: *Bega, McPhilben, Norbert Belfer*
Interior lighting, controls: *Halo, Leviton*
Custom glass sconces, pendant fixtures: *Preston Singletary, Norman Courtney*
Narthex carpet: *V'Soske*



The original one-story library had a tennis court on its roof (opposite right) but now supports a glass-fronted addition (this page and opposite top).

Igloo Architects' second-story addition to the BIBLIOTHECA WITTOCKIANA is a family affair with a happy ending.



by Tracy Metz

Michel Wittock has been interested in autographs, rare books, and bookbinding since he was 16, and in the course of the years the Belgian industrialist has compiled a unique bibliophile collection dating back as far as the Renaissance. In 1980 he commissioned a friend, Emmanuel de Callataÿ, to design a single-story museum—the Bibliotheca Wittockiana—for his collection on a plot of land behind the Wittock home in the elegant diplomatic quarter of Brussels. The privately financed museum, one of Brussels' more esoteric institutions, was inaugurated in 1983 and was an unexpected success.

By 1994 quarters at the library were getting increasingly tight and the collection was still growing. So Wittock, who had retired by now, turned to his son, Charly, who was a graduate student at Yale's school of architecture and who had already—at age 29—remodeled a house in Berkeley, Calif., for the writer Alice Walker and started his own firm, Igloo Architects, in New York City.

Asked to expand on what is essentially his father's life's work, Charly was granted less than a lifetime to react. In two weeks he had to come up with a design to build on top of the existing museum, replacing a rooftop tennis court. The entire process of design and construction had to be finished within a year and a half, as the opening was planned to coincide with an important festival in Brussels.

Tracy Metz, RECORD's correspondent based in Amsterdam, is the editor of the feature section of the Dutch national newspaper NRC Handelsblad *and writes about architecture, design, and urbanism.*

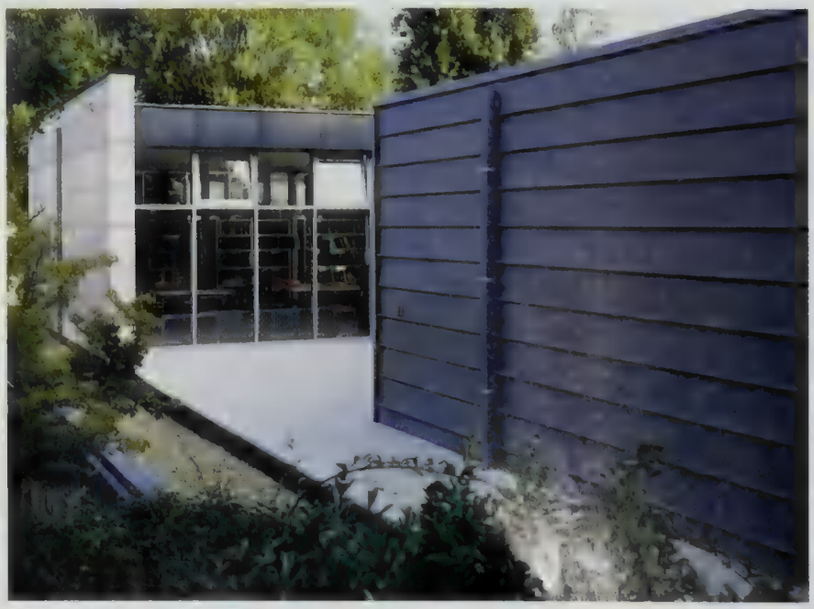
Old and new architects collaborate

"One of the reasons for the hurry was that I, in fact, already had a design—by the architect of the original building," admits the elder Wittock. "I had simply not stopped to think that I had a son who was now an architect." De Callataÿ, says Charly, graciously agreed to join the design team, which was a boon when it came to the nuts and bolts of connecting the second story to the original one. For example, the existing building's roof is made of concrete slabs, one of which was partially removed for the new stairway, which had to be calculated precisely to fit into the slot.

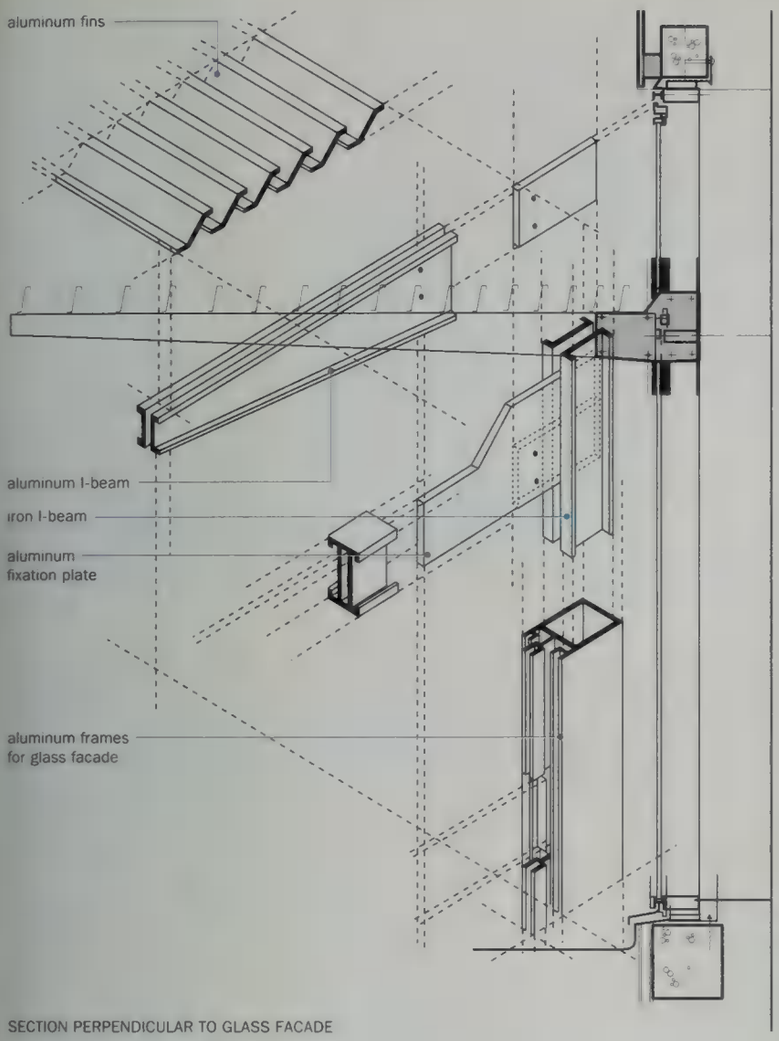


Charly Wittock flew to Brussels and got straight to work. "During the day I would work on the design and in the evenings we held charrettes with artists, architects, and friends. It was a very exciting and intense time—and we made the deadline." It was during these charrettes that Charly discovered how well he worked with Etienne van den Berg, another young architect—"partly because he can draw and I can't," Charly admits. Since 1996, van den Berg has been Igloo's man in Brussels, while Wittock runs the firm's American office in New York.

Project: *Bibliotheca Wittockiana Brussels, Belgium*
Architect: *Igloo Architects—Charly Wittock, partner-in-charge; Etienne Van den Berg, project architect; Robert Shepherd (Eyecandy Design), Christophe Bourdeaux, Douglas Gauthier, Corrado Ferretti, Benoit Wittock, design team*
Architect of record: *Emmanuel de Callataÿ, Bureau d'Architecture et de Décoration—Emmanuel de Callataÿ, partner-in-charge; Jean Coeckelberghs, project architect*
Engineer: *D.B.D. (Michel David)*
Lighting design: *Sign (Guido Gysens)*
General contractor: *E.G. Co. G. Surkyn & Fils (Philippe Surkyn)*



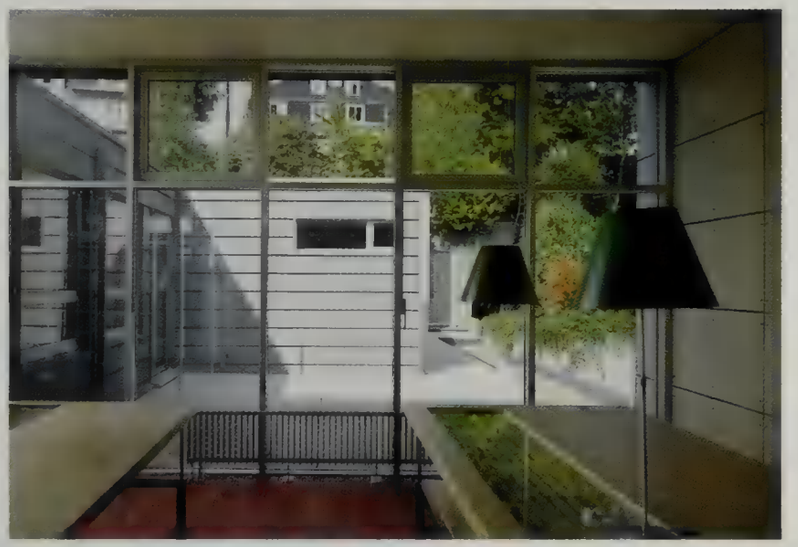
The Brutalist-style concrete library that opened in 1983 now serves as a solid podium for the lighter addition (above). Smooth gray panels of fiber-cement siding wrap around the walls of the addition on both the outside and inside. Setback requirements and the desire to bring daylight into the interiors led to ■ series of paved terraces (left).



SECTION PERPENDICULAR TO GLASS FACADE

An aluminum brise-soleil (axonometric, left) helps protect the front of the building from direct sunlight. Double-glazing with a UV filter also allows daylight to brighten the reading areas (below).





Igloo's design is different in every way imaginable from that of the original museum. De Callataÿ's building consists of an entrance hall, an exhibition space, a curator's office, a small book shop, and a small room without daylight that's used for bookbinding classes; it is introverted, a vault built to protect a delicate treasure, and therefore admits a minimum of daylight. Despite its Brutalist concrete exterior, the single-story building has a low-key presence, and with its landscaping of trees and ivy might not even be noticed by the casual passerby.

Space is tight and so are zoning laws

For his extension to the museum, Charly Wittock had even less area at his disposal, as new city zoning laws required setbacks of 1 meter at the sides and 2.5 meters at the front. "Rather than repeating the closed box, we 'exploded' it," explains the architect.

The extension, 3,456 sq ft of new construction and 2,700 sq ft of outdoor areas, adds not only space to the museum, but also new programs. A light stairway of steel and tropical efzelia-wood steps leads up from the book shop to the airy reading room at the front of the building and to an open hall with exhibition cases, two small offices on the right, toilets on the left, and an ingenious fold-out café that will be finished when the budget allows (as will the chairs Igloo designed for the reading room).

In the back there is a private apartment, intended to house guest scholars and the festive openings of exhibitions. But the elder Wittock, who now lives in Rome, liked it so much that he uses it as his Brussels pied-à-terre. Both the reading room and the apartment look out onto small courtyards, which bring daylight into all spaces. In the "public" courtyard behind the reading room a piece of outdoor sculpture is planned.

The glass facade has an aluminum brise-soleil cantilevered off the window frames. In addition to the brise-soleil, the double glazing contains a coated layer that serves as an ultraviolet filter. The setback on the front facade was dictated by zoning regulations, but the result is that the reading room with its northern light seems to have a narrow garden over which the brise-soleil casts intriguing shadows.

To contrast with the closed facade of the existing building, Wittock wanted to open the new addition up to the outside world so that when passersby look up they see books—not rare books, of course, but catalogues of rare books. Within a frame of exposed concrete, the book-

"RATHER THAN REPEATING THE CLOSED BOX, WE 'EXPLODED' IT," SAYS WITTOCK.

shelves are mounted on ball bearings so they can turn full circle, enlivening the otherwise solemn atmosphere of the reading room. Tongue-in-cheek references to the traditional temple of learning are the lamps, which have green plastic shades and an on-and-off system activated by the heat of one's hand. The tables, also designed by Igloo, have sunken, glass-covered troughs that are now used to display books but will accommodate computers when the library is automated.

Simple, light, and legible

This is indeed a project much in the Modernist vein of "form follows function," with the public spaces of the library larger, taller volumes and



LOWER FLOOR



UPPER FLOOR

1. *Entry*
2. *Exhibition*
3. *Gift shop*
4. *Office*
5. *Rare books*
6. *Conference*
7. *Storage*
8. *Reading/stacks*
9. *Exhibition hall/café*
10. *Bedroom*
11. *Kitchen*
12. *Living*
13. *Dining*



Concrete bookshelves are mounted on ball bearings so they can rotate full-circle, either opening up or closing off the reading room from the outside world (left and opposite). A steel stairway leads to an exhibition hall (below) where a fold-out café will be built. The 3,456-sq-ft addition has floors made of tropical efzelia wood, and birch reading tables with glass-covered troughs that can accommodate computers.





the private ones smaller and lower. "We pulled the box apart and wanted to keep it as simple, light, and legible as possible," Charly Wittock says. The materials were chosen to enhance this lightness: glass, zinc, and bluestone for the doorsteps. Walls are covered both inside and out with fiber-cement board, a smooth, gray material that joins interior and exterior in a continuous flow.

MATERIALS WERE CHOSEN TO ENHANCE A SENSE OF LIGHTNESS: GLASS, ZINC, BLUESTONE, AND SMOOTH FIBER-CEMENT BOARD.

The entire Wittock compound is built on a sharply sloping site, with the family house accessed from the street above and the library from the rue de Bemel below; the height difference between top and bottom is a full 33 feet. As a result, the floor between the old and new levels looks unusually thick. Seen from the lower street, the original concrete building serves as a pedestal for the younger generation's contribution—rooted, ironically enough, in an architectural past that dates back to the early European Modernists.

A client who's proud of his architect

On a recent trip to Brussels, Michel Wittock is ensconced in his beloved library, comprising more than 5,000 volumes and several thousand letters from Belgian and French writers and artists. He looks up from a gold-stamped Renaissance volume to say how delighted he is with the building his son has designed for him. Later, Charly says, "When I was a child, my father was a distant figure, always more involved with his books than with us. Before he built the original museum, he used our house as a repository for his books. An original edition of a 16th-century French book lived under my bed! To be honest, we were jealous of the collection, and glad of the space we recovered in our house when he concentrated it all in the museum." Charly Wittock pauses for a moment. "This commission is important to me as a beginning architect. But personally it means much more. It was a way to get to know my father again." ■

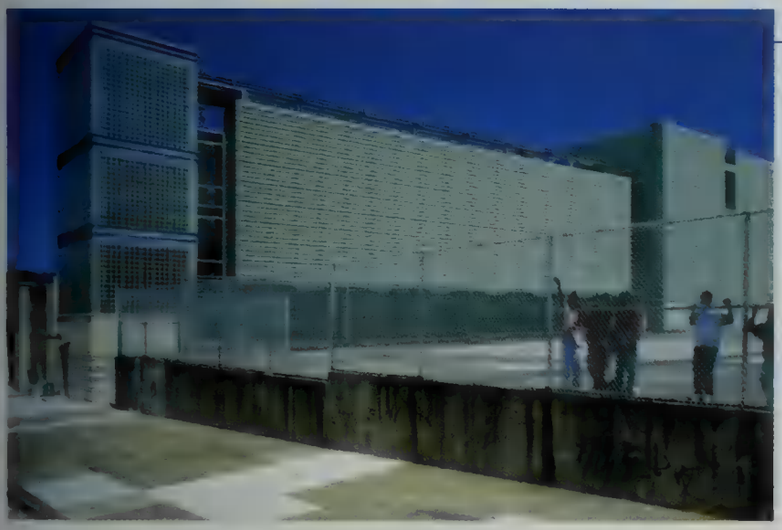
Manufacturers' Sources

Fiber-cement panels: *Eternit (Eflex)*
Patio paving stone: *VCR (Saxon)*
Aluminum windows (large): *Schüco (FW 50 system)*
Aluminum windows (small) and doors: *Reynaers (T 131)*
Door pulls: *Carl F. Peterson (d Line, Model A3.0)*
Finn birch plywood bookshelves and reading tables: *custom by architect*
Halospot AR70 lights: *Modular (Mini Multiple 4)*
Ambient lights: *Fontana Arte (Scintilla Plafond)*
Ambient lights: *Luceplan (Constanza Sospensione)*
Task lighting: *Luceplan (Constanza Terra)*



A glazed stair tower gives the 20,700-sq-ft building an outsized street presence. Metal cladding faces a playground (opposite).

It's tough, it's small, but this PHYSICAL THERAPY BUILDING helps a college face a future of tumultuous change.



by James S. Russell, AIA

The Physical Therapy Building at the Philadelphia College of Pharmacy and Science (PCPS) is only 18 ft wide at the street and encloses just under 21,000 sq ft, but a lot was riding on it. Its construction represented a renewed commitment by this small (2,000-student), specialized private college to revitalize a physical plant that some argued didn't deserve the attention, and a commitment to a city and a neighborhood that critics said was too unstable to attract top students.

The commitment didn't come easily. The college, founded in 1821, not only had a long history in Philadelphia (moving to its present site in 1928), but had forged affiliations to the region's many pharmaceutical giants and the city's vast medical education infrastructure. (Philadelphia has more medical-teaching universities than any other city.) It is the oldest and among the most prestigious of pharmacy colleges, graduating names long familiar from their appearance on billions of prescription bottles: Wyeth, Lilly, McNeil, Lambert, Burroughs, and Wellcome.

On the other hand, PCPS's 14 buildings could hardly be called a campus. The college is all but invisible to visitors and passersby: parking lots face Woodland Avenue, the busy arterial that splits the college, while buildings turn inward. Narrow pathways link the hodgepodge of buildings and cross Woodland Avenue at the middle of a busy block. Many of the buildings are architecturally undistinguished, are poorly adapted to current and future needs, and have significant maintenance requirements.

Many within the college, and some of the institution's trustees, saw Philadelphia as a problem. The campus, in a neighborhood built up in the 19th century, is at the confluence of a declining industrial zone to the southeast, a growing institutional district to the northeast (including the University of Pennsylvania and Drexel University), and a mix of residential and commercial blocks—some of it stable and middle-class, some of it scarred by disinvestment and abandonment.

These physical plant deficiencies and the standard inner-city woes—fear of rising crime, declining city services, and a high tax burden—drove some trustees to suggest a move. "They asked me," explains college president Philip P. Gerbino, "if you had $50 million or $100 million to do it, would you move the college outside of the city?" The question came at the time Gerbino was being considered for his current position. He said he couldn't support a move. "We're part of West Philadelphia and we're part of Philadelphia, so it's important to stay here." He got the job and with it the commitment to revitalize the curriculum and the campus to prepare students for a health-care landscape that is in the midst of tumultuous change.

Building a small first step toward a broad new campus vision

The Physical Therapy Building is the first tangible result of the college's new direction. But the institution not only had limited physical expansion options, it had never previously had any use for architecture as an expression of a vision or identity.

The 200-ft-deep site was hardly ideal. Indeed, Mellet Architects, the designer ultimately chosen to do the building, initially recommended against the location because of the cost of demolishing an abandoned loft building and the logistical costs of erecting a new building within such tight confines. The site, however, was the only land the college could readily obtain to expand the burgeoning physical therapy program. Hastening the decision, structural deterioration of the loft and recurring flooding

Project: *Physical Therapy Building Philadelphia, Pennsylvania*
Owner: *Philadelphia College of Pharmacy and Science*
Architect: *Mellet Architects—Yann Mellet, principal; Greg Chiselko, project architect; Ginger Kindred, Sandy Lichtenstein, Claudia Richardson, Keum Pyo, project team*
Engineers: *Michael Beach (structural); Dangovetsky Kholer (mechanical)*
Contractors: *Henderson Corporation (general); Welsh Waymar (HVAC)*

threatened adjacent 4500 Woodland Avenue, a warehouse converted to PCPS classroom use. Obtaining the site through a sheriff's sale cleared the way for the project.

A collage of issues molded into deceptively simple form

Mellet Architects, a five-year-old firm, has completed few buildings, but Yann Mellet, its principal, gained the college's confidence through a series of smaller projects. Mellet was able to apply experience (garnered in a variety of large firms prior to founding his own) to do such essentially problem-solving projects as the bare-bones, $40-per-sq-ft conversion of

THE PROGRAM WAS SIMPLE. ITS REALIZATION, IN A SITE-FILLING, SLABLIKE BLOCK, IS DECEPTIVELY SO.

4500 Woodland and the remodeling of spaces within Griffith Hall, the college's equivalent to an "old Main," into traditionally styled but audio-visually sophisticated lecture rooms.

The program—offices and classrooms—was simple. The realization, in a site-filling, slablike three- and four-story block, is deceptively so. In plan, it's a single-loaded corridor, but Mellet molded the form and elevations to meet numerous and at times conflicting criteria. He describes his charge as, "Give us as many classrooms as we can get." In the process of fitting program to site, the mix of offices changed, and classrooms went from eight to six, but labs went from two to three.

On the southwestern side of the site is a playground for a public school, the quality of which is a key neighborhood concern. Mellet met with representatives who asked (as PCPS did) that the party wall neither be too intimidatingly severe nor a magnet for graffiti. For code reasons, Mellet couldn't punch windows at the lot line, so he carved recesses, permitting limited window areas. He felt he couldn't add many because the recesses deprived the building of valuable floor area, and more west-facing windows would have exacted heavy energy penalties in a structure with such an unusually high proportion of perimeter to interior. He lined the playground-facing base with an undulating chain-link fence as a whimsical graffiti-prevention measure. The chain-link also screens street-level glazing that pours light into ground-floor offices that would otherwise not receive any.

By setting a single-loaded corridor to the north, which could be extensively glazed with little energy penalty, classrooms could borrow light. Mellet and his team built numerous study models to make this prominent elevation more expressive. A glass-block-clad street-facing exit-stair tower became a glowing beacon. Mellet punctuated the predominant horizontal glazing by applying a projected square glazed in a vertical pattern. It marks the location of a special third-to-fourth-floor stair (opposite top). He further modeled the slab by pulling out the innermost exit stair and cladding it in metal siding. A metal-framed trellis civilizes a small, rooftop exterior space. It also visually caps the building and can hold banners announcing major college events.

The long elevation's big-scale gestures offer a fresh, lanternlike symbol of the college to drivers approaching Woodland Avenue from either direction. Its layers of commercial-building materials and patterns pick up the heterogeneous nature of the surroundings, offering a reading that can be appreciated by students and staff day after day. *(text continues)*



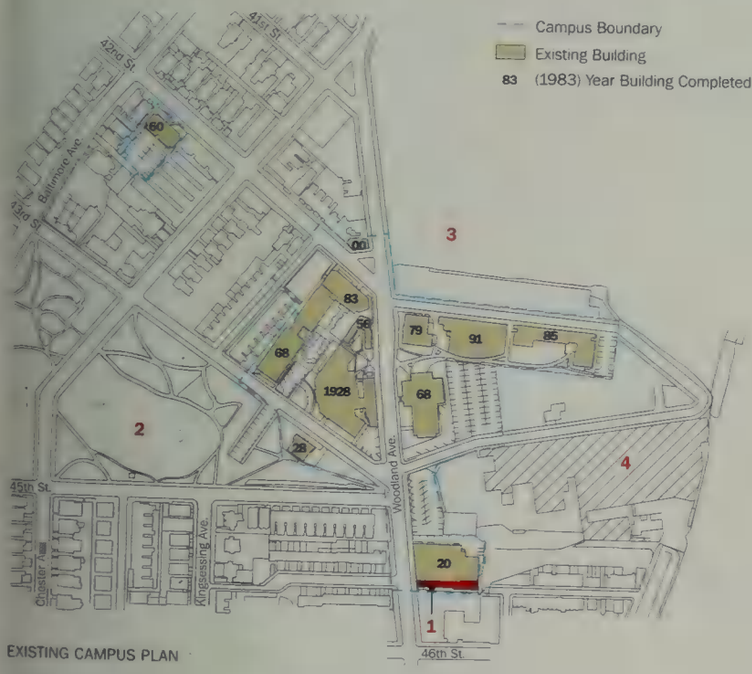
P R O C E S S

While the Physical Therapy Building is a beginning, the campus master plan addresses the environment of chain-link fences and parking lots that makes the campus virtually invisible.



Finding room to grow in a complex urban environment is the challenge facing the master plan prepared for the Philadelphia College of Pharmacy and Science. The institution is not only on the verge of becoming a university, it will likely change its name to reflect a much-expanded mission. Besides training pharmacists, the college's historic mission, it already offers programs for physician's assistants, occupational therapists, physical therapists, and health psychologists. But as the health-care economy is remade by technology and new managed-care methods, the college is redefining its mix of programs and building new partnerships, not only with other local health-care institutions, but with pharmaceutical and chemical companies. Hence Mellet's plan proposes new labs and integrated health-sciences facilities. It also proposes placing most new structures on land now occupied by parking lots and a closed ice-cream plant. It recommends the closing of some streets and design changes to slow traffic on Woodland Avenue (above) and make streets more pedestrian-friendly. New buildings will form quadranglelike spaces around green space as another way to develop a sense of place (with an added sense of personal security). Because it works with the most readily obtainable sites, many of the master-plan moves are pragmatic rather than idealized: the leasing of part of a cemetery for outdoor recreation, for example. The college has already forged the equivalent of a business-improvement district with neighboring institutions. Van pools increase access among institutions, and private guards beef up neighborhood security. With such partnerships and an approved master plan, Gerbino is confident he can raise the $70 million or more he needs to realize this vision.





EXISTING CAMPUS PLAN

1. *Physical Therapy Building*
2. *Clark Park*
3. *Woodlands Cemetery*
4. *Closed factory site*
5. *New research or classroom building*
6. *Annex building renovation/expansion*
7. *New research or resource building*
8. *New dormitory*
9. *Future dormitory*
10. *Klein Hall replacement*
11. *Library expansion*
12. *New athletic fieldhouse*
13. *New humanities or health-sciences building*

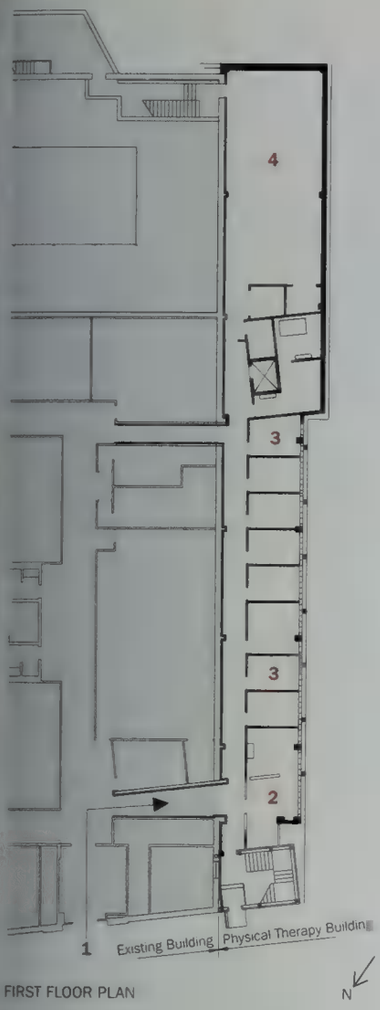


CAMPUS MASTER PLAN

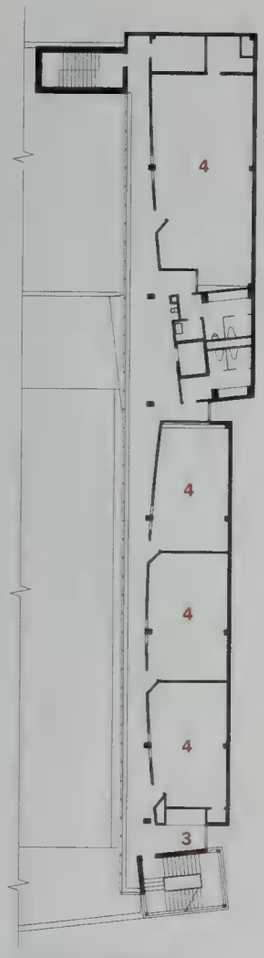
Existing buildings erected over a 70-year period focused the campus inward on narrow, poorly coordinated passages (plan above). Mellet's master plan moves parking to the industrial side of the site (right) and creates a new quadrangle, but also increases the college's presence on the spine that divides it, Woodland Avenue.



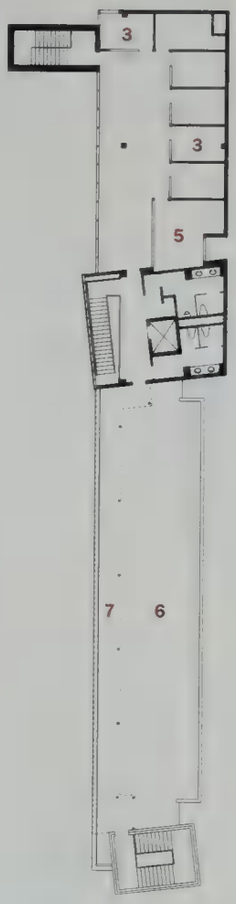
The street-facing glass-block, brick, and limestone stair tower is visually akin to the warehouse-turned-classroom it adjoins.



FIRST FLOOR PLAN



SECOND FLOOR PLAN

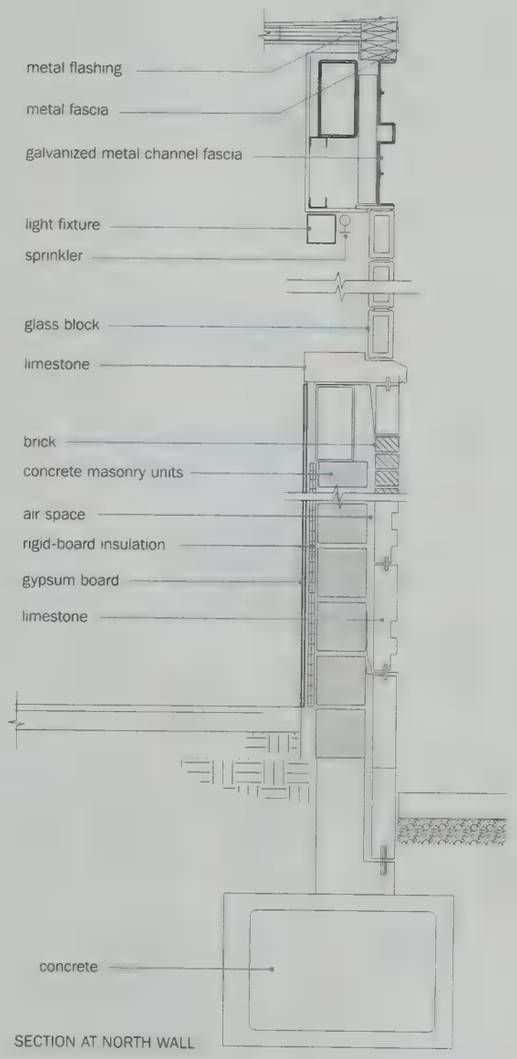


PENTHOUSE FLOOR

1. *Entrance through existing building*
2. *Reception*
3. *Office*
4. *Classroom*
5. *Conference*
6. *Rooftop mechanical*
7. *Terrace under trellis*

A rooftop trellis (bottom left) visually crowns the building. Its leading edge can support banners announcing events. The wall section mixes metaphors: galvanized channels and glass block (industrial); brick and limestone (institutional).





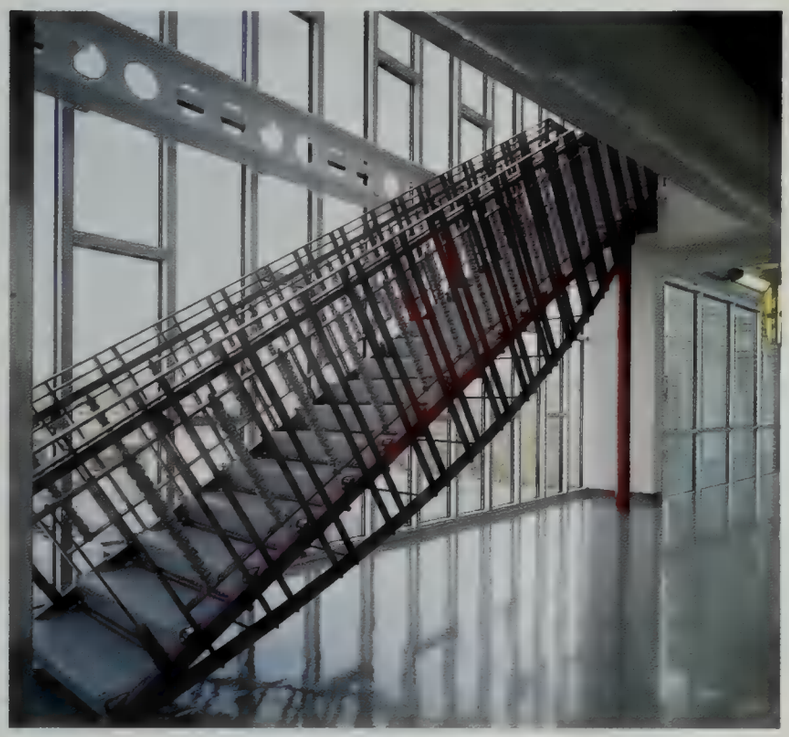
SECTION AT NORTH WALL

Mellet's custom-designed light fixture (to right and below duck) is complemented by an inexpensive commercial one.



Mellet added a note of whimsy by fastening electrical insulators to a stair rail (below right). Classrooms, an office area (right), and exit stairs (left) are light-filled but straightforward.





Preferring the standard to the custom

Mellet kept costs down by working with standard products, limiting complex combinations, and avoiding conditions requiring custom details. The designers minimized complicated intersections by making one long side almost entirely out of a single-source window-wall system; the other is almost entirely clad in metal siding. In the corridor—the principal architectural space—Mellet carefully organized sprinkler pipes and ductwork to eliminate a finished ceiling (opposite). The floor slab visually butts against the glazing, eliminating the need for spandrel panels and sills. The exterior ribbed metal cladding is drawn into the interior where it becomes a wainscot. Inexpensive commercial light fixtures are semiconcealed, while the corridor is enlivened by whimsical lights Mellet's firm fabricated in its own workshop. (Indeed, as a business adjunct, Mellet's firm is designing and fabricating light fixtures and other accessories using such unlikely ingredients as plastic bananas and metal spoons.)

Only at the short street elevations does the building offer a pedestrian-scaled combination of limestone, brick, glass block, and galvanized-channel fascia (section, page 65). Still, hidden foundations, rock, and hazardous materials left over from the site's previous occupant helped push costs up from the targeted $120 per sq ft to a final $140.

Mellet admits that those long comfortable with the campus as it was do not love his building. However, students have embraced it, since it offers light and expansive views inaccessible anywhere else on campus. (Even Mellet's renovation of the adjacent warehouse didn't have the budget for punching out windows or skylights.) Its smallish yet attractive public spaces begin to realize Gerbino's expansive and synthetic view of where the college needs to be headed. Since pill-dispensing can readily be replicated by machines, for example, the pharmacist's role is increasingly evolving to become what Gerbino calls a "knowledge purveyor." He sees as crucial using a "facilities vision" to create a new identity for the college. "We're breaking down our one-topic silos and beginning to integrate our sciences—from basic to applied," he says. "Everything has application and connections." Small as it is, Gerbino sees the Physical Therapy Building as galvanizing. He is confident he will be able to raise the money to realize the vision embodied in Mellet's master plan (page 63), making visible the college's (soon to be university's) commitment to its neighborhood and its city. ■

Manufacturers' Sources

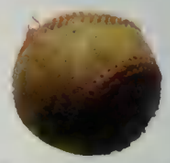
Glass block: *PPG*
Ribbed metal siding (exterior, interior): *Robertson Wall Systems*
Aluminum-and-glass curtain wall: *Kawneer, PPG (glazing)*
EPDM roofing: *Carlisle Syntec systems*
Fire-rated corridor windows: *Ceco*
Vinyl-composition-tile flooring: *Armstrong, Forbo*
Carpet: *Shaw Harbinger*
Ceramic tile: *Dal Tile*
Lighting: *American Lighting, Lumax, Mellet Architects (custom fixtures)*
Hydraulic elevator: *Dover*
Maple-veneer wood doors: *Mohawk*
Metal doors: *Steelcraft*
Paint: *Benjamin Moore*

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HYPER GROWTH in South China

FROM THE PEARL RIVER DELTA TO SHANGHAI

by Michael Sorkin



As Benjamin Disraeli famously remarked, "The East is a career." Indeed. Booming China has become American architecture's latest fever dream. The skylines of Hong Kong, Shenzhen, Guangzhou, and Shanghai map a staggering commodification of space: skyscrapers sprout like weeds in a mind-boggling volume of construction. As I walked the steamy streets on a recent trip to south China, every other shop—its doors flung open in a potlatch of BTUs—unleashed a blast of cold air and techno, luring the pent-up consumer demand of decades. On a first trip to China, my own reaction was salivary: show me the moneeey!

This astonishing spectacle of hyper-development aroused a colonial fantasy that put me in direct touch with a century's worth of acquisitive incursions. Time to close the Manhattan office and set up out East, down the street from HOK, up the hill from OMA. But, almost as quickly, the guilty liberal counter-reaction set in: what business is it of mine (of ours) to help purvey all this? Should we be abetting the deluge of hermetic, anticlimatic towers, of McDonald's and Haagen-Dazs and KFC, of cellphones and Muzak and Chevy Blazers, the whole apparatus of consumption that seems so tawdry back home? Shouldn't we be telling them there's cancer in Marlboro Country?

The question reminded me of an incident from the early days of Gorby and *glasnost*. I'd been invited to appear as part of a panel of Soviet and American architects to palaver about the coming era of peace and cooperation. As was typical at such events, an American generally took on the role of gently chiding the Soviet comrades that unabashed capitalism was not necessarily a uniformly good thing, that the promise of rapid development had to be taken with a grain of salt.

On that particular evening, this task fell to me and I chose as my cautionary tale an account of the recent opening of McDonald's first Soviet store on a site near Moscow's Red Square. Warming to the chore, I dilated on McDonald's as an instrument of cultural imperialism and global homogenization, as a threat to the environment, and of course as everything nutritionally pernicious.

When I was done, an elderly Russian rose in the audience and addressed me with infinite forbearance and a heavy accent: "Tovarich," he said slowly shaking his head, "to you McDonald's may be a corrupting agent of cultural imperialism but to us . . . it's meat!"

The Chinese have woken up and smelled the bacon-burger in a

In its rush to build, Hong Kong has been reconfiguring its famous "Fragrant Harbor" since the 19th century. The new Chek Lap Kok airport (red area immediately north of Lantau Island on map above) is being built on reclaimed land, as was the existing Kai Tak airport. After more than a century of land reclamation (maps, opposite), some groups in Hong Kong are raising objections to the latest round of projects that would turn the harbor into a channel.

Michael Sorkin, a contributing editor of ARCHITECTURAL RECORD, *was the architecture critic of* The Village Voice *for 10 years. Currently he runs an architectural practice in New York City.*


1887
1924
Kowloon-Canton Railway operational in 1910
1945
1967
Lion Rock Tunnel operational in 1967
Kai Tak Airport reclamation completed in 1957
1976
Kowloon-Canton Railway Terminal moved to Hung Hom in 1975
Container Terminal reclamation completed in 1976
Airport Runway extension completed in 1974
Cross-Harbour Tunnel operational in 1972





Signs of the times: commemorative stamps circulated by the Chinese government show C. H. Tung, Hong Kong's new chief executive (left), and the late Deng Xiaoping (right) floating above the Hong Kong skyline. Boomtown: the Pudong district of Shanghai is sprouting skyscrapers across the Huangpu River from the city's old downtown (opposite). Kohn Pedersen Fox has designed a tower for Pudong that will be the world's tallest building.

big way. Not only has an astounding wave of Coca-Colonization put a McDonald's on seemingly every corner, China is building sprawling McCities that put Los Angeles or Phoenix to shame. The new town of Shenzhen north of Hong Kong, to cite only the most vivid example, grew from a village in 1980 to a city of three million in the span of 15 years, enjoying a consistent *500 percent* growth rate in the 1980s. The engine for all this is the country's conversion to what Deng Xiaoping memorably described as "One country, two systems," a more succinct slogan than its wimpy predecessor, "Socialism with Chinese characteristics." Although both slogans try to cannily collapse a contradiction with a phrase, a crucial question lingers: just what, if any, are the Chinese characteristics?

Deng, of course, was proposing the possibility of the coexistence of command and market economies, overturning the historic idea of mutual anathema that has dominated the geopolitical system since World War II. Countries like China and the Southeast Asian "tigers" represent a version of the once-again fashionable theory of "convergence," the idea that capitalist and socialist systems would ultimately reach the same point, ending class struggle with a whimper instead of a bang. The real issue, though, is not exactly economic: the ultimate hegemony of the market seems all but assured. What is far less certain are the kinds of social, cultural, and especially political institutions that will ultimately emerge.

A visitor to China can scarcely escape noticing the seeming contradiction between economic and political life, the outburst of consumerism and its necessary "freedoms" within a context of political repression. It seems increasingly clear that both the Taipan and the Commissar believe that all social issues are fundamentally economic and that democracy is a hindrance to the ultimate grail of development.

As the world becomes one market, justice and the parity of nations take on an increasingly economic cast. [illegible] globalism. If we understand the world ecologically, in terms of sympathetic patterns of interdependency and delicate husbandings of difference, then all of us have a stake in urban outcomes around the globe, a stake that transcends the routines of profit. Globalism has its own theory of the local, and experience obliges us to be more than a little nervous about the way in which the world economy is influencing urbanism. Ecological insight—thinking globally and acting locally—should cause American architects to ponder long and hard about the energy-sapping, fast-depreciating, jerry-built, carbon-monoxide-laced, freeway-entangled environment we are helping the Chinese to produce, however much they may want it.

One of the hoary chestnuts of classical Marxism is the theory of the stages of development, which describes society's historical trajectory to communist nirvana. The old debate was whether or not it was possible to skip stages, to accelerate, for example, directly from feudalism to socialism without going through capitalism. While the economic and ideological vectors of this construct are now thoroughly moot, it surely has bearing as a model for the environment. It's the burden of the developed world to report our findings and experiences to a society that is in the process of repeating patterns familiar to us and in so many ways regrettable. The hope and frustration at the encounter with cities developing flat-out like Guangzhou or Shanghai is that the opportunity to pursue the next stage of environmental management immediately is lost in the extractive frenzy of the moment.

China is, in many ways, well situated for such a stage-skipping leap. The position of the planner is nearly ideal: the state both owns all the land and licenses the number of residents permitted to live in a given city. This, you might say, is power. However, the key element for the mobilization of this power is lacking internally: money. Because of China's own underdevelopment, the driver for this tremendous growth is foreign

NOT ONLY HAS A WAVE OF COCA-COLONIZATION PUT A McDONALD'S ON SEEMINGLY EVERY CORNER, CHINA IS BUILDING SPRAWLING McCITIES THAT PUT L.A. TO SHAME.

investment and the current strategy for attracting it is a version of the traditional concession. The tithe for access to China's enormous market and labor pool is cash on the barrelhead and it's flowing in like a torrent. The enclaves—by channeling this investment to a limited geographical area (36 percent of all foreign investment currently goes to Guangdong)—create a kind of economic venturi effect, narrowing and thus accelerating the stream. The downside is that investors are in the saddle, giving rise to amazing corruption forced by this imbalance of assets and an eagerness for the transfer of wealth by whatever means necessary. Chinese municipalities wind up not managing growth but dealing for it.

Corruption aside, the official mind-set is not disposed to nuanced urban design. The history of modern Chinese urbanism—like our own—embodies a high level of ambivalence both about the role of the city and about the import of Modernist planning models. The new developments in the special economic zones repeat the arms-length attitudes of the historic concessions, the idea that these places, if useful, were fundamentally alien and had to be isolated.

Post-1949 planning has shown radical swings in attitude toward the city and its role in building Chinese society. Through the early 1950s, official ideology emphasized the city as driver and promoted urban concentration as a means for producing rapid economic results. Within a short span of years, though, attitudes turned dramatically toward decentralization. This was the consequence of a revolution that had been won by the peasants and of an ethos that emphasized the countryside as the source of revolutionary virtue and viewed urban concentrations as consumptive rather than productive. Later, these were joined by a nuclear-war paranoia that prompted industrial dispersal and a de-emphasis of the vulnerable coast. To their infinite credit, Chinese planners have—through these shifts in policy—managed to create industrial growth without expanding slums. Now, however, as the dominant planning model shifts again—from social welfare back to economics—the idea of the big-city engine and its economies of agglomeration has returned to the fore.

My impression, both from conversations with planners and from English-language sources, suggests that although an extensive professional and scholarly urban discourse exists, it remains highly subservient to primary, economic models. I was unable to discover an organized critical, scholarly, or political counterforce to the rapid development paradigm that currently rules. This seems the consequence both of a long history of official strictures on free speech and of another "stages of development" issue. In the exhilaration of the shop-til-you-drop, seemingly automatic boom of the moment, the arrival of the era of liberal anxiety and independence has been further delayed. There are stirrings on the environmental front, but clearly not enough is yet happening on the local and neighborhood levels, and—seemingly—no strong promotion of a longer-term *physical* vision of what might make Chinese cities singular has emerged. In this, the Chinese may have learned from us too well.

PUDONG HAS BECOME A REMARKABLE URBAN FREE-FIRE ZONE, A MUSEUM OF LATE-20TH-CENTURY EDGE URBANISM.

This issue of the burden to communicate our own failures becomes especially thorny in matters of culture, where we risk getting





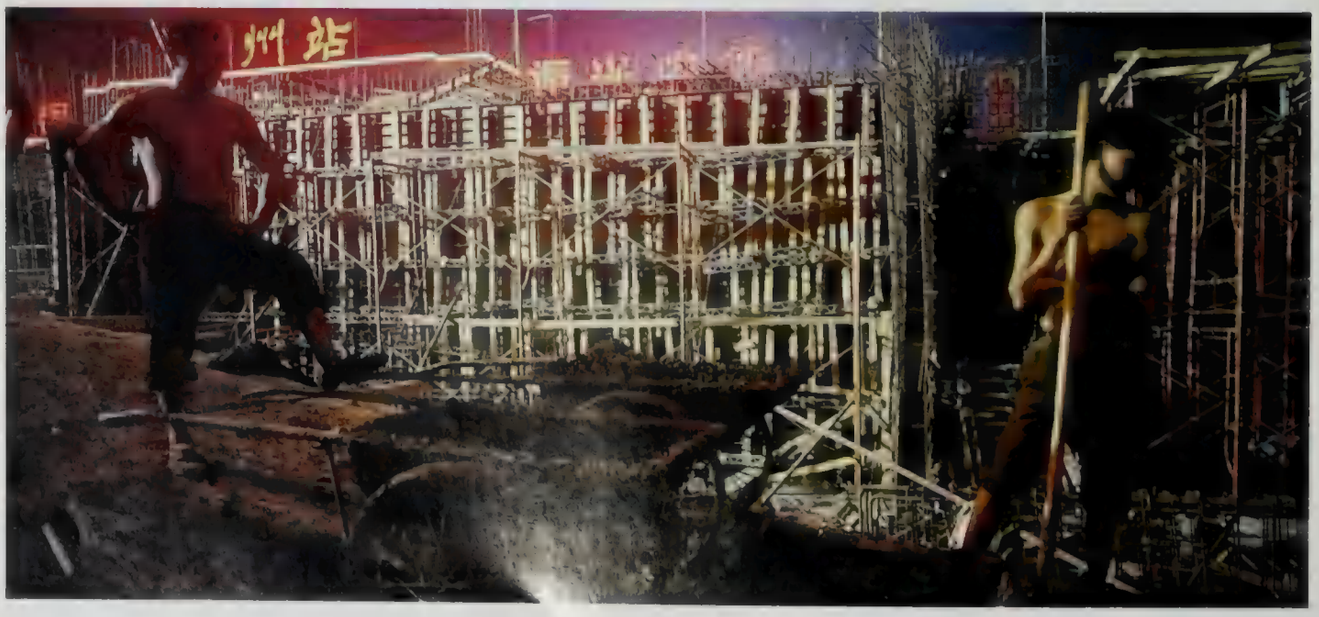
From eclectic Postmodern to cheap Modern, the new buildings rising in Shenzhen cover the full range of architectural styles that can be cribbed from foreign magazines and a plethora of Chinese publications showing American and Western projects. In places like Shenzhen, which was little more than a village surrounded by rice paddies 15 years ago, it's often hard to see what's Chinese in character.

into the deepest, most spiritual forms of colonialism. The new building I saw is not simply the same multinational architecture one might see anywhere, it is rapidly destroying the historic textures of the cities in which it rises. For instance, the *longtang* is the traditional form of urban residence in old Shanghai. Developed around the beginning of the 19th century and passing through a complex evolution, these rowhouses combine Chinese and European features and line the narrow lanes that characterize the pattern of city. This structure of houses, lanes, neighborhoods, and districts helps give old Shanghai a legible and tractable sense of locality and of community, however spatially, structurally, and hygienically inadequate many of the structures may be. Of course, lying at the center of town, they're tremendously vulnerable to development pressure (Shanghai's current rate of growth is a brisk 14 percent) and are being destroyed at a rapid clip: over 16.2 million sq ft demolished and over 100,000 people displaced each year.

In a chat with two well-placed planning officials, I wondered about the disappearance of this texture and heritage and asked whether there was any attempt to keep communities intact. While making all the appropriate noises about the loss of historic, social, and physical textures, they told me that there was no widespread objection to displacement. Like my Soviet comrade years before, they pointed out the obvious. Offered a new apartment with a modern kitchen and bathroom and plenty of space, people leaped at the chance to move to satellite towns a dozen miles from the center. Indeed, the offer of an extra bedroom was strong motivation to move an additional six or seven miles out.

The problems, of course, come later. The satellite towns are regimented, unprepossessing, one-dimensional, and constructed at a scale and increment to frustrate neighborliness. Hilberseimeresque nightmares of parallel slabs, their balconies desperately domesticated with plants, laundry, and caged birds, these new areas are the crucibles—the real melting pots—of the old version of the "new man," engines for the obliteration of difference at the global scale. Distances tremendously attenuate commuting, adding pressure for automotive solutions. And the redeveloped areas of town are scaled up and discontinuous, valuing the parcel over any sense of continuity, erasing the qualities that make the city particular. This is a problem Shanghai and Guangzhou share with all older cities, finding strategies for the superposition of new modes and patterns for the production of space on a body that could never have anticipated the shock. As in our own cities, the product is sprawl without end and a dramatic loss of the middle-scale.

Shanghai's biggest development is Pudong. Since the days of Sun Yat-sen, Shanghai planners have dreamed of a move across the Huangpu River to claim the territory immediately opposite the Bund and the downtown core. Following the economic liberalization of 1978 and the dramatic experience of the Shenzhen Special Economic Zone, the decision was made in 1984 to perform a similar experiment not simply in the limited area opposite the Bund but over a far greater contiguous territory stretching to the Yangtze—140 sq miles (approximately 70 percent of the area of Hong Kong). Planned only in a general way, flouting the "plan-before-leasing" philosophy that supposedly governs, Pudong



No time to waste: throughout much of south China and Hong Kong, construction goes on around the clock (left). Still growing: photomontage of Hong Kong's skyline shows a proposed development with a tower by Cesar Pelli and ferry terminal by Anthony Ng (opposite).



has become a remarkable urban free-fire zone—a museum of late-20th-century edge urbanism and of the Postmodern skyscraper, the Arquitectonicaesque tower next to the Fosteresque next to the Pelliesque, not far from the Portmanesque. Added to this is another version of convergence, the ragged space and the wild semiotic encrustation of bright lights and signage, of overhead wires and traffic that make up the local boomtown patina. It's no news in L.A. or Houston that this Asianized version of modernity is reimported to its source: *Blade Runner* got it right.

Touring Pudong or scratch-built Shenzhen, a number of truths become evident. The first is that the general, primarily land-use and infrastructure style of planning, coupled with a proclivity to global Modernism, yields a totally generic condition. It's striking how marginal the particular differences among the dozens of skyscrapers are. Whether produced by international big offices or just local big offices, the variation in quality is entirely a matter of narrow connoisseurship: the formal convergence is almost total. Just as the buildings from the American firms spring from images clipped from *Progressive Architecture* (the current crop of buildings have been in the pipeline for a while), so the indigenous product is a similar synthesis of necessity and image. Chinese architectural publishing is largely devoted to either technical literature or pattern books, and I was not surprised on a visit to a large Shanghai design institute to find an architect with one eye on his workstation and the other on a book opened to the KPF curtain wall he was cribbing. Soon all differences will be gone: already the copies of *Domus* are beginning to appear on the desktops. And everyone's on the Net.

Structurally, Pudong is an enclave, both physically and legally, another "concession," a wealth machine. Such an instrumental view yields the city as theme park. And the theme is money. This is more than a metaphor: the forms of wealth are produced historically, within the context of culture. Driving into Shenzhen, one sees an enormous reproduction of the Eiffel Tower, centerpiece of the "Wonders of the World" theme park which dances a tango of reciprocal certification with the economic wonder that envelops it. And, in an an environment in which all is new, the simulacrum of old Europe is as close as the city gets to having a historic district. Who would have thought that the Long March would finally lead to Orange County?

The model for all of this—not to mention the major source of funds—is Hong Kong. More than any other city in the world, Hong Kong produces an architecture of extraction, which understands real estate strictly in terms of the production of extent. Hong Kong's endless towers are as legible as bar graphs. Already abstractions, their details are trivial, just decorating the primary signifier. In its endless manufacture of space, the city fills in its harbor, its greatest visual and public asset, to increase the availability of prime, harbor-front land for yet more towers. Even the new airport, constructed on an artificial island and the largest construction project currently under way on the planet, may ultimately just represent a strategy for reclaiming exhilaratingly central Kai Tak for development. Hong Kong never blinks. For aviation safety the neon signs atop the towers burn without cease—Soup Noodle and Kirin Beer endlessly illuminate the night.

HONG KONG'S ENDLESS TOWERS ARE AS LEGIBLE AS BAR GRAPHS. ALREADY ABSTRACTIONS, THEIR DETAILS ARE TRIVIAL, JUST DECORATING THE PRIMARY SIGNIFIER.

The skyward growth of Hong Kong is, at least in part, a function of shortage. Hong Kong Island, the core of the metropolis and the territory originally ceded to the British following the Opium Wars, is hemmed by circumstance—harbor on one side and unbuildable peak on the other. Like Manhattan, the compressive linearity begs verticality and Hong Kong's beautiful thicket of towers is the result. Locality springs from the interaction of stunning topography, lush vegetation, marvelous coastlines, dynamic economy (from 1948 to 1986, the number of registered factories in Hong Kong grew from 1,266 to 146,623), and the habits and jostle of culture. This physical autonomy, though, belies the growing continuity between Hong Kong and its Pearl River Delta hinterland, another shortage-induced relationship the Chinese leadership hopes to extend by stages to the rest of the country—as rising costs seek cheap labor in the interior.

Clearly, what has mesmerized China *(text continues on page 151)*

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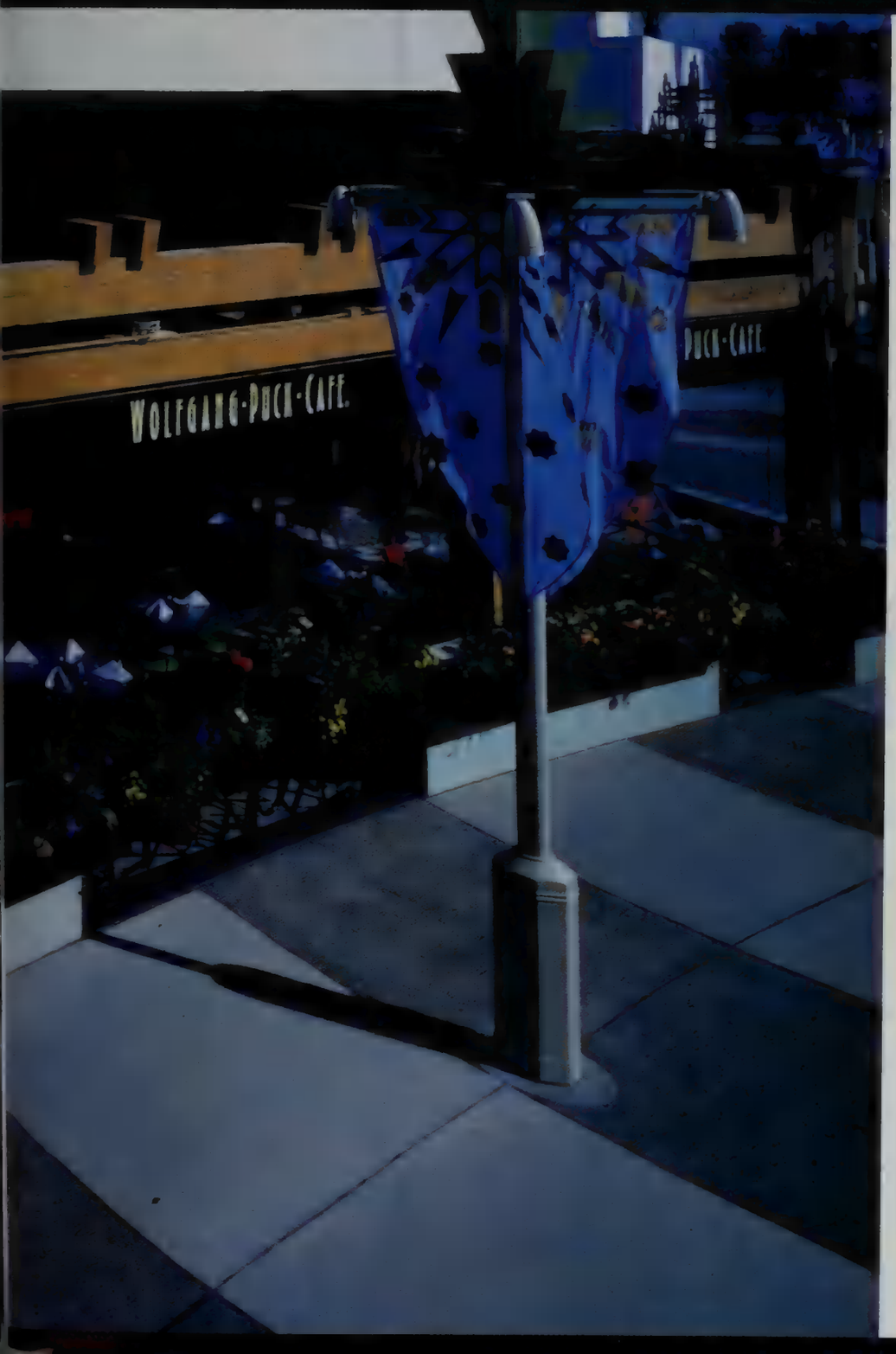
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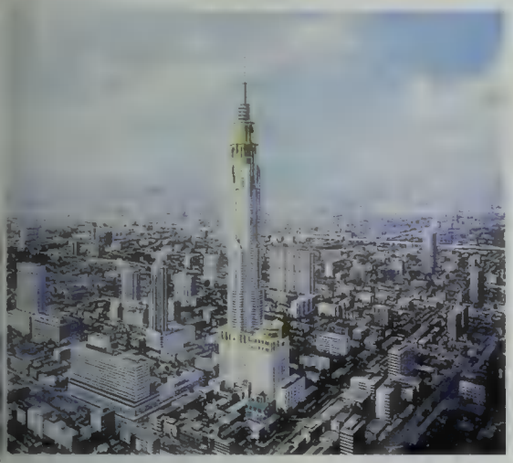
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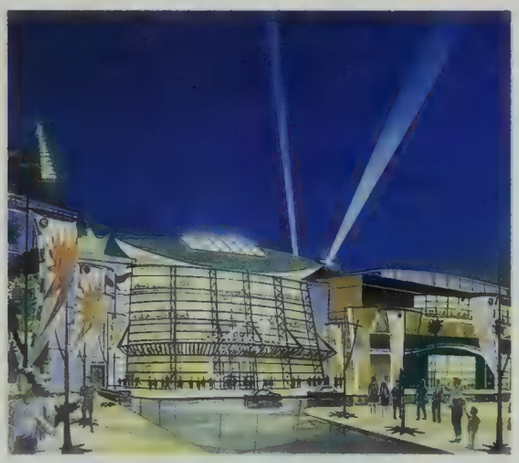
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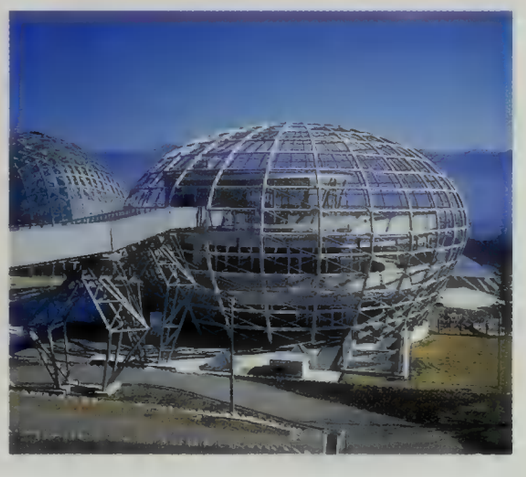
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REPORTS from the PACIFIC RIM

ARCHITECTS FIND BUSINESS FROM INDONESIA TO CHINA.





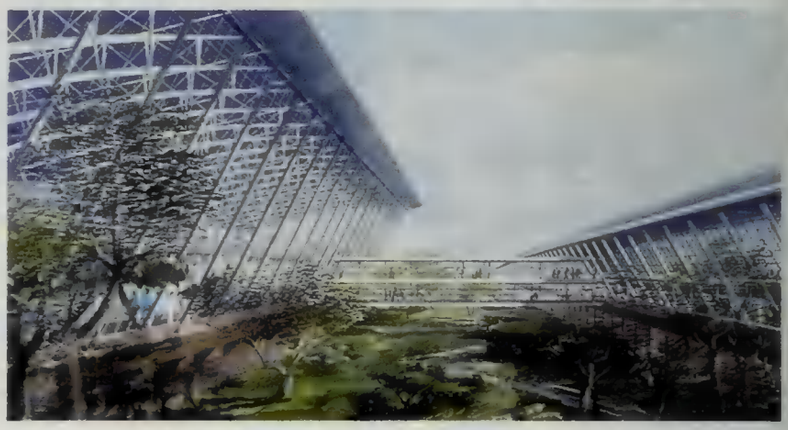


Five years ago, when ARCHITECTURAL RECORD started its special coverage of the Pacific Rim, one of the great building booms in history was revving up. Sure, Japan's "bubble" economy had just burst, and Australia and New Zealand were wrestling with stubborn recessions. But nations throughout Asia were frantically putting up skyscrapers, building new roads, and turning rice paddies into satellite towns. It was both exhilarating and frightening. Today, some of these same countries are discovering that they've built too many office towers (and not enough housing); that no matter how many roads they've laid, traffic has gotten worse (and so has mass transit); that foreign debt and questionable construction loans are undermining their financial systems (even though building continues). Corruption, a lack of coordinated planning, and widespread damage to the environment have all cast shadows on the present and the future. But recent conversations with architects in the region indicate that design professionals in Asia understand the key issues: housing, public transportation, and sustainable development. While they often feel helpless in the face of momentous change, these architects and planners are asking the right questions. They won't always come up with the right answers or be able to implement their solutions. But knowing what to ask is a good first step. The knowledge gained over the last five years should help countries like the Philippines and Vietnam that are just now gearing up for major development, as well as countries such as Thailand and Korea that are coping with the aftereffects of rapid growth. Finding ways to integrate historic preservation with modern growth and retain local character in the face of global forces are two of the challenges architects must address today. What's also needed is for information and expertise to flow freely so everyone can learn from the mistakes and successes of others. The pages of RECORD are one place where this exchange of ideas, approaches, schemes, and experiences can take place.—Clifford Pearson

Asian building boom (above, left to right): Baiyoke II Tower in Bangkok by Aroon Chaiseree; Central City 2020 in Bangkok by RTKL; Fruit Museum, Yamanashi, Japan, by Itsuko Hasegawa.

CHINA

GDP, 1996: *$662.8 billion*
GDP growth, 1996: *9.7 percent*
Projected GDP growth, 1997: *9.3 percent*
Inflation, 1996: *8.3 percent*
Population, 1996: *1.23 billion*
Economic overview: *Defying all predictions, China has engineered a soft landing for its economy. With growth remaining just below 10 percent, the Chinese authorities have reduced inflation from 24 percent in 1994 to single digits last year. But while slower capital investment has helped bring inflation and the GDP growth rate down, the lack of funds for new construction has hampered designers and construction companies alike. The country is littered with unfinished, bankrupt building projects started in the boom days of 1993–95. Luxury developments (including villas and sometimes Class-A office buildings and high-end retail) are frowned on by planners these days.*



The new Shanghai airport in Pudong.

The death of senior leader Deng Xiaoping after a long incapacitation has raised the stakes for the current leadership, which faces a series of challenges this year. President Jiang Zemin, Deng's handpicked successor, must oversee the return of Hong Kong to China this month, then fight to keep control over the direction of the country and key personnel changes at a once-every-five-year Communist Party Congress in October. Jiang travels to Washington for his first summit meeting in November, by which time he hopes to have the problems of World Trade Organization entry and the United States' unconditional extension of "most favored nation" trading status solved.

Where the action is: In terms of overall development, Shanghai is still the hottest region in the country. Guangdong Province (including the city of Shenzhen), on the other hand, is not attracting as much attention as it had in recent years. Development has also slowed down in Beijing, in part because of the government's strict enforcement of planning rules. While still encouraging development on the coast, the government is putting more emphasis on interior provinces, offering favorable tax policy for investment there. Reflecting this shift to the interior, China has raised Chongqing's status to that of an autonomous city, putting it on the same level as Shanghai, Tianjin, and Beijing. A new railway, the Nankun line, has also been built in the southwest connecting the Mekong Delta region to the South China Sea.

Residential market: Housing sales are poised to rebound, even as the office-building market remains in the doldrums in major cities. Among 16 sample cities surveyed during the first quarter of this year, nine showed increases in housing sales, with Chongqing, Shenzhen, and Xian having the biggest rates of growth. Chongqing, after being lifted to municipality status, climbed significantly, while Shenzhen, thanks to the booming real estate market in neighboring Hong Kong, also saw housing grow. In Shanghai, city officials have responded to criticism that they are only interested in attention-grabbing office buildings and have started building a number of residential projects for the city's 16 million residents. The country's year-long effort to stimulate the family housing market with tax deductions has helped push prices down. And more home buyers are expected to enter the market this summer when the central government announces new policies on providing mortgages.

Office market: The office-building market weakened this spring with a continued nationwide decline led by Beijing, Shanghai, and Tianjin, all of which logged double-digit plunges in their real estate indexes. Chongqing is the only exception in office building sales; it surged 22 points.

Corruption: China's construction industry continues to be hampered by corruption, resulting in shoddy quality and fatal building collapses. Figures from the Chinese equivalent of the attorney general's office show that 27.6 percent of economic crimes in China last year involved the construction industry. In Shanghai alone, 39 of the 77 major bribery cases in 1996 involved construction firms. But graft is only part of the problem—a lack of comprehensive laws and regulations has resulted in chaos. For instance, says one disgruntled architect in Beijing, domestic design firms are not allowed to demand high-quality foreign construction materials in their buildings. This architect says that fierce competition, the poor quality of Chinese building materials, and weak supervisory mechanisms have all contributed to the industry's woes.

Taking off: Dozens of airports are being expanded, planned, or built throughout the country, but the two that are getting the most attention are the new Pudong International Airport, planned for Shanghai, and the expansion of Beijing Capital International Airport. After an international design competition, Aeroports de Paris, headed by architect Paul Andreu, in association with the East China Architectural Design Institute, won the Pudong commission, the first phase of which is scheduled to open in 2000. In Beijing, the new 2.33 million-sq-ft terminal, designed by Toronto-based Bregman + Hamann Architects (B+H) and the Beijing Architectural Institute of Design, is the largest airport expansion project in China. The first portion of the project, which will eventually include 26 international and seven domestic gates just a couple of hundred yards east of the old terminal, should be completed sometime in 1998. The entire expansion is expected to be finished by the fall of 1999. B+H has stayed busy in China, also designing the 1.2 million-sq-ft Xiamen Gaoqui International Airport and the 918,000-sq-ft Phase I of the Haikou Meilan Airport on Hainan Island.

Key projects: Shanghai already has 53 buildings of more than 30 floors, and a total of 411 buildings standing between 20 and 29 stories. Yet construction goes on, with Skidmore, Owings & Merrill's Jin Mao Building and Kohn Pedersen Fox's World Financial Center vying for tallest-building-in-China honors. The Jin Mao Building, which was recently topped off, stands 1,388 ft (420.5 meters) high. The Shanghai Huadong Architectural Design Institute and the Shanghai Design Institute also worked on the building, which will include a Grand Hyatt hotel on the top 24 floors and office and retail space below. Just a stone's throw away, Japan's Mori Company has started building the KPF-designed World Financial Tower, which will be the world's tallest building at 1,518 ft (460 meters) when completed in 1999 and will cost around $1 billion.

Joe Studwell in Beijing

INDONESIA

GDP, 1996: *$218.5 billion*
GDP growth, 1996: *8.1 percent*
Projected GDP growth, 1997: *8 percent*
Inflation rate, 1996: *8 percent*
Population: *200.8 million*
Economic overview: *After the economy was deregulated in the early 1990s, foreign investment in Indonesia soared. On an annual basis, foreign investment approvals exceeded $8 billion in each of the four years to 1993, jumped to $23.7 billion in 1994, continued to climb to $39.9 billion in 1995, and then fell off to $29.9 billion in 1996. Indonesians have seen their world improve markedly since Suharto took control in 1966. Economic growth rates of above 7 percent have become the norm; per capita annual income has risen from around $50 to more than $1,000; and poverty has been reduced from 60 percent of the nation's population in 1970 to 13.7.*



Brennan Beer Gorman's Jiwasraya Tower responds to a tropical climate with two facade treatments.

Despite the Suharto regime's stringent efforts to maintain national stability, Indonesia currently stands at a crossroads between stellar economic success and massive political upheaval. State assembly elections held in May prompted limited but significant unrest from thwarted prodemocracy supporters of Megawati Sukarnoputri—the daughter of President Sukarno, Indonesia's charismatic founding father—and the Islamic Party, both of whom oppose Suharto's ruling Golkar government. Presidential elections due next year are likely to prompt further uncertainty among both the local population and foreign investors. Indonesia can ill afford a political meltdown at this time. Seventy-six-year-old Suharto is expected to stand for and win next year's election, but if he fails to introduce a clear succession plan, 200 million people could be left to cope with the potentially messy aftermath of his 31-year reign.

Construction activity: Against all expectations, Jakarta's property market continues to boom. The pie, however, is not being shared equally. While large firms thrive, smaller developers are being squeezed out of the market by oversupply, high interest rates, and lending curbs. Independent builders, many of whom reaped quick profits during the property boom of the early 1990s, are too small to attract overseas financing and must rely on domestic loans which, under a new tight monetary policy, are only available at rates as high as 22 percent. Larger players, however, can tap cheap overseas capital and concentrate on upper-crust segments of the market. According to the Indonesia Real Estate Association, the credit squeeze has led some builders to raise capital for projects directly from consumers prior to construction. In some cases, however, the developments have failed to materialize, leading to mounting complaints in recent months.

Office construction: Jakarta's central business district continues to buzz with massive construction projects. The total stock of Class-A office space now stands at 28.1 million sq ft, an increase of 16.8 percent over last year. Class-A office buildings continue to dominate the market with 54 percent of the supply, a reflection of Jakarta's impressive rate of economic growth in those sectors with a traditionally high absorption of office space: financial services, banks, telecommunications, and trading.

Retail construction: A 28.1 percent increase in the supply of retail space over the last 12 months is a reflection of the increased demand for consumer goods among Jakarta's burgeoning middle class. New construction for the first quarter of 1997 was 893,000 sq ft, bringing the cumulative supply to 11.7 million sq ft, or 7.6 percent higher than first quarter 1996.

Residential building: The same forces are pushing up the apartment and condominium markets, where overall supply increased by 24 percent to 16,753 over the quarter, an increase of more than 81 percent from the same period 12 months ago. However, most developers believe the market will slow down, in part due to disruptions from the general election.

Local perspective: According to Suntana Djatnika, president of the 5,000-member Indonesian Institute of Architects and a partner at Team 4 Architects and Consulting Engineers, the country's enormous construction opportunities are balanced by what he sees as an over-reliance on foreign architectural firms. "Never in the history of our country has there been such opportunity," he says. "However, we also have to admit there is a learning curve for local architects." Too many of the large buildings are given to foreign firms, he believes.

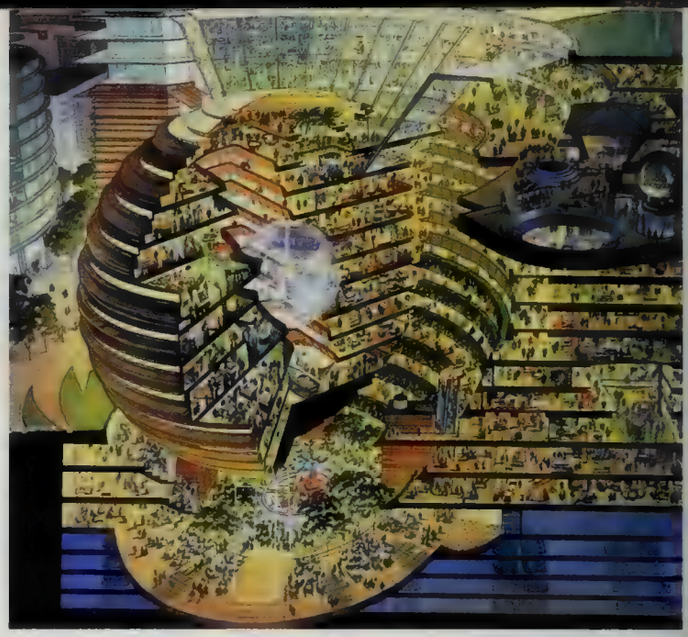
Responding to the local climate: Construction will begin this summer on the Jiwasraya Tower, a 32-story, 700,000-sq-ft office building in Jakarta being developed by P.T. Mitrasraya Adhijasa. Designed by Yann André Leroy, a partner at New York–based Brennan Beer Gorman Architects, the oval-shaped tower has two different kinds of facades to handle tropical solar conditions: on the east and west, deep mullions and an exposed structure help shade the building's skin, while on the north and south, where solar loads are less severe, the curtain wall is flush (drawing above).

Big sport: Government agencies will spend $200 to $300 million to build a 54-story skyscraper in the capital. The Indonesia Sports Tower, which will replace the existing National Sports Council headquarters, will become Indonesia's tallest building, a distinction now held by the 46-story BNI City complex.

From diplomacy to capitalism: Local property giant Plaza Indonesia Realty announced plans to build a mixed-use complex in Jakarta with 378,000 sq ft of retail, 497,000 sq ft of apartments, and 659,000 sq ft of offices on a city center site previously occupied by the Russian Embassy. The project is to cost $225 million. *Nigel Simmonds in Bali*

TAIWAN

GDP, 1996: *$235.5 billion*
GDP growth, 1996: *5.7 percent*
Projected GDP growth, 1997: *6.3 percent*
Inflation, 1996: *3.1 percent*
Population: *21.3 million*
Economic overview: *Taiwan's economy appears to have turned a corner after political tensions with mainland China squeezed GDP growth in 1996 to its slowest rate since 1990. Economists say the economy is picking up as exports improve; exports could get a big boost if the new Taiwan dollar depreciates against the U.S. dollar. Foreign investment is also up, growing at 28.3 percent in the first three months of 1997, compared to the same period last year. The Taiwan stock market has reached seven-year highs, causing Central Bank of China officials to express concern it is overheating, possibly signaling the return of heavy asset speculation in Taiwan.*



Slow growth hurt the real estate market in 1996, although developers say it is showing signs of improving. One factor is the stock market, which analysts expect to have some carryover influence on the real estate market as investors transfer stock-market earnings into new homes. Also, the opening of the first two lines of Taipei's Mass Rapid Transit system should dramatically affect the housing market as demand rises for homes close to new MRT stations.

Housing and retail: The housing market suffered in 1996, as construction declined 22 percent from 1995, to 222.5 million sq ft. Construction spending dropped 20 percent, to $4.4 billion. The economic slowdown was particularly damaging to the retail sector. New retail construction declined sharply, from 165 million sq ft to 118 million sq ft in 1996, a 29 percent drop. Spending on retail space also dropped by 29 percent to about $1 billion. Analysts expect the retail situation to change sharply for the better, however. Developers are planning 20 to 30 new shopping malls around the island, says Calvin Wang, general manager of Investec, a Taipei real estate consulting firm. Wang cites tax credits and an easing of zoning rules as reasons for shopping-center development becoming more feasible. "We still don't have any shopping centers," says Wang. Developers will need to look overseas to find architects with mall experience, so this should provide big opportunities for foreign firms.

Office-building construction: The office market is suffering from oversupply, especially in Kaohsiung and Taichung, although the sector grew last year, by 2.5 million square feet, an 8.6 percent rise. Spending on new office space rose 22 percent, to $541 million. Some of the growth involved projects finished last year that had been planned earlier when the market was better, and some was stimulated by developers' desire to build projects to avoid new zoning limits.

Hospitality: Hotel construction was a bright spot last year. New hotel space rose 52 percent, to 973.6 million sq ft. Analysts credit rising occupancy, especially in Taipei and Hsinchu, the location of Taiwan's main high-tech industrial park, where the rates are 85 percent and 95 percent respectively.

Speed, not quality: Architects worry that the breakneck pace of development has diminished standards and reduced opportunities. Developers have used architects to help them get big buildings up in a hurry, not for designing quality buildings, says Cheng Mei, principal Cheng Mei, a prominent Taipei firm. With much volume being produced, "architects don't have too much to say in the process," Cheng says. Some architects are frustrated at the lack of sophistication of the client base. Rapid economic development resulted in a market for gaudy architecture. "There is a lot of superficial display of wealth, and stuff taken out of context, like Louis XVI furniture," says Taipei architect Carl Shen.

Stadium plans in doubt: Taipei officials want to build Taiwan's first domed sports stadium downtown on the site of an existing baseball stadium. The bidding process is under investigation after the deputy mayor interceded on behalf of one developer. The stadium will have a retractable roof, but the design would break height restrictions for the area near an airport. City officials hope the 1.3 million-sq-ft sports-and-entertainment project will attract trade shows and conventions.

Innovative retail: An unusual shopping center will be built in Taipei by an investment group led by Core Pacific, a Taiwan securities brokerage. Designed by the Jerde Partnership of California, it is similar to Canal City Hakata, which Jerde designed in Fukuoka, Japan [RECORD, March 1997, pages 110–15], and will have 1.7 million sq ft in seven stories below ground and 12 above (drawing above). Taiwan's space limitations mean shopping centers must be built vertically, posing a challenge for managers who have to find ways to get shoppers to use the top floors.

Scraping the sky: In Kaohsiung, Taiwan's Tuntex Group is building an 85-story tower, the nation's tallest. Designed by HOK with Taiwan architect C.Y. Lee, it has an upper section resting on two separated lower towers. Some architects have criticized the design as being economically impractical since builders had to use an extremely heavy steel structure to keep it stable during earthquakes. "It's like a vertical tank," says Shen.

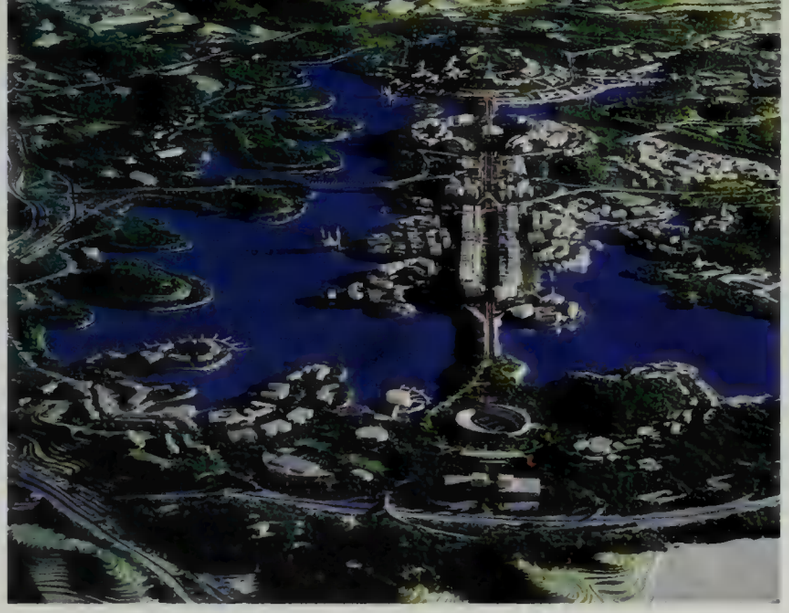
Veterans' housing: A project with a lower profile, but perhaps greater impact, is an island-wide plan to replace veterans' housing (below). The $18.9 billion project to build 100,000 housing units will take over nine years. Architect Philip Fei, of Cheng Mei, which is doing the preliminary design work, says the undertaking is the largest single project being planned in Taiwan. The idea is to create a quality living environment with plenty of open spaces. "This will change the way people look at public housing," says Fei. *Jonathan Moore in Taipei*



One scheme for veterans' housing (left). Jerde's shopping center in Taipei (above).

MALAYSIA

GDP, 1996: *$53.1 billion*
GDP growth, 1996: *8.2 percent*
Projected GDP growth, 1997: *8.1 percent*
Inflation, 1996: *3.5 percent (estimate)*
Population, 1996: *20.6 million*
Economic overview: *After overheating in 1995 with 9.5 percent growth, the Malaysian economy returned to a more sustainable rate of 8.2 percent last year. According to Bank Negara (the nation's central bank), the economy should again grow between 7.8 and 8.2 percent in 1997, continuing a string of eight consecutive years of at least 8 percent growth. The current account deficit is expected to widen to $6.04 billion from last year's $5.3 billion, growing at the same rate as the economy and staying at 5.5 percent of the GNP. Manufacturing, construction, and services are the main engines driving economic growth in Malaysia and are expected to grow 11, 13, and 9 percent respectively in 1997.*



Intent on turning his country into the information hub of Southeast Asia, Prime Minister Mahathir Mohamad has been promoting plans for a new Multimedia Super Corridor (MSC). Running south from Kuala Lumpur's commercial center, the 31-mile-long, 9-mile-wide development area will encompass the new federal administrative capital of Putrajaya and the new Kuala Lumpur International Airport (KLIA), both under construction. The government has committed $19.6 billion for physical infrastructure and is attracting high-tech companies such as Microsoft to build offices and manufacturing facilities in the area, which will be serviced by a 100 percent digital fiber-optic network. The MSC project is a key part of Mahathir's strategy to elevate Malaysia to developed-nation status by the year 2020.

A new capital city: At the heart of the MSC is Putrajaya, the new administrative capital for Malaysia. After asking local consultants and government departments to submit master plan proposals for Putrajaya in 1993, the Prime Minister's Department selected a Garden City concept by the firm BEP Akitek, whose lead designer for the project is Kun Lim, a 36-year-old architecture graduate of the University of Houston. The master plan divides Putrajaya, which will eventually accommodate 570,000 people, into 15 self-contained neighborhoods, each with its own schools, shops, and community facilities.

Moving ahead: Construction of the $8.2 billion project is under way and the relocation of 76,000 government employees to the new capital is scheduled for 1998. Located in Selangor, the city will be easily accessible from the new airport. Putrajaya Corp., which has the regulatory authority of a city government and the development powers of a state economic-development corporation, is charged with building the city and later running its affairs. Putrajaya Holdings, chaired by prominent stockbroker Tan Sri Rashid Hussein, is the exclusive developer. It is a private company owned by government agencies and has the option of building on its own, entering into joint ventures with other parties, or parceling out land for development to private companies. KLCC Bhd, the project manager of Kuala Lumpur City Center, which includes the Petronas Twin Towers, has been hired as project manager. The plan of Putrajaya—with its axial avenues, grand vistas, nodal points, and monumental landmarks—recalls the City Beautiful tradition of town planning and bears some similarity to Walter Burley Griffin's 1912 design for Canberra, the capital of Australia.

Multimedia haven: Close to Putrajaya will be a new "information technology city" known as Cyberjaya that will include a Multimedia University and research-and-development facilities for such organizations as Telekom Malaysia, TV3, and agribusiness giant Golden Hope. Groundbreaking for the 1,853-acre site was set for this spring. Cyberjaya is being marketed as a complete yuppie paradise with golf courses, restaurants, shops, and sports clubs. Some of the incentives offered to information-technology firms are tax holidays for 5 to 10 years, free repatriation of profits, reinvestment allowances, and for the biggest players, a seat on the MSC International Advisory Panel. Microsoft's Bill Gates is reported to have accepted a place on the panel and Microsoft is in the process of moving its regional headquarters to the MSC, although it isn't expected to do any core product design there.

A river runs below it: In the center of Kuala Lumpur, private developers are hoping to build KL LinearCity over the next 20 years. Echoing design ideas of Archigram, the British group from the 1960s, the LinearCity would include an above-ground megastructure snaking above the Klang River and using land and air rights of the corridor. In fact, Peter Cook and the late Ron Herron, who were both members of Archigram, served as advisors on the LinearCity project. Connectivity is a key feature of the development, which envisions a pedestrian-friendly environment on a city scale, integrated with a linear park, the river, public transportation, car parks, and major leisure, retail, residential, and business facilities. Design work, which is still in the early stages, is being carried out by Original Scope Sdn Bhd.

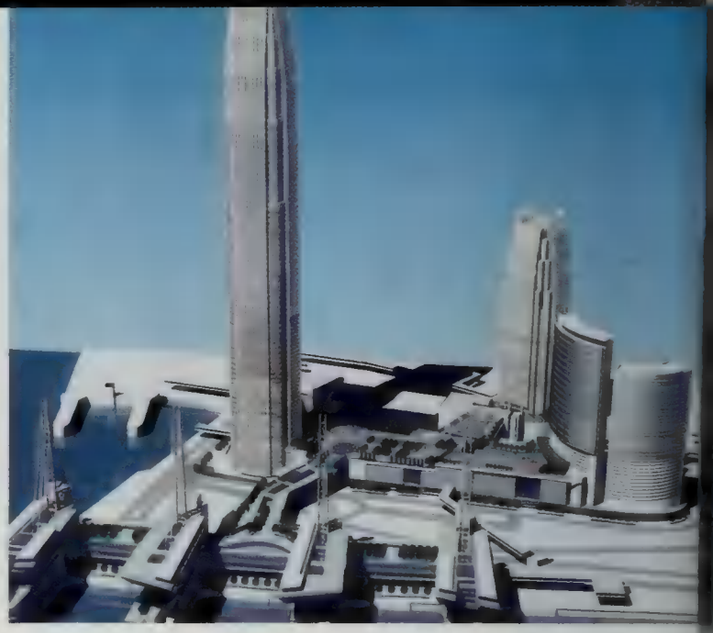
Trying to be green: A "river beautification" program is now in place that will see a linear park built along the 7.5-mile length of the LinearCity project. Of this corridor, a stretch of 1.5 miles will be built 33 feet above the Klang River. The developers say the project will address environmental considerations, such as providing adequate sunlight and unobstructed views across the river. An urban entertainment zone, GigaWorld, will occupy part of the project. Construction of the first phase of GigaWorld is scheduled to be completed by the end of 1999. Will it all happen as planned? Critics dismiss these megaprojects as publicity stunts, but proponents say the MSC, Cyberjaya, and the LinearCity will propel Malaysia into the information-technology age.

Down south: Agarta Universe Theme Park is taking shape outside Johor Bahru in the south of Malaysia. Developer Agarta Universe Sdn Bhd, whose chairman is former UN Secretary General Javier Perez de Cuellar, will have spent $367 million on the first phase of the 250-acre park by the time it opens at the end of 1998. *Robert Powell in Singapore*

Putrajaya, the future administrative capital.

HONG KONG

GDP, 1996: *$155 billion*
GDP growth, 1996: *4.6 percent*
Projected GDP growth, 1997: *5.4 percent*
Inflation, 1996: *6 percent*
Population: *6.4 million*
Politics and business: *Speculation on the future of Hong Kong abounds, but the city's famous harbor and its location at the hub of the Pacific Rim should ensure its status as the largest container port in the world and a major business location. Some changes in the political environment are inevitable and are already occurring, such as increased self-censorship in the press and more attention to contacts in Beijing. But China has very stong interests in preserving the business environment, being the largest foreign investor in Hong Kong. Politically, Beijing is aware that any hopes for a peaceful reunification with Taiwan depend on its sensitive handling of Hong Kong.*



On June 30, Britain's 99-year lease on the New Territories expired and, as delineated in the 1984 Joint Declaration between China and Britain, the whole of Hong Kong reverted to Chinese sovereignty. As a result, the one-time colony has become the Hong Kong Special Administrative Region (SAR) of China. Replacing Governor Chris Patten is Tung Chee-Hwa, chief executive of the new SAR. Although some of China's changes to Hong Kong's laws have been controversial, particularly the revocation of the Bill of Rights, China says it is returning to the legal structure in place when the Joint Declaration was signed.

Fear of the unknown: Although Hong Kong's incoming government will retain most of the current senior staff, the new leadership is bound to make some missteps as it learns on the job. These may play to fears of the handover and cause some volatility, but downturns are likely to be short-lived. The major danger would come if Beijing is distracted by a severe power struggle, which might open the way for meddling and corruption by less enlightened mid-level or provincial officials. Nevertheless, Michael Enright, a professor at the University of Hong Kong School of Business, asserts, "the Hong Kong economy should be [able to withstand] virtually anything short of political or social meltdown, and I don't see meltdown on the horizon."



Housing boom: Hong Kong has swung back into a strong recovery, which is expected to continue through 1998. Growth this time has been largely demand driven, with an upswing in the residential property sector and stronger retail spending. Housing prices have risen more than 60 percent since December 1995, and with few new units hitting the market next year, increases are likely to continue. Housing is the most important asset of most Hong Kong families, so stronger prices have reinforced confidence and consumer spending. Housing completions in 1996 were 18,089 public rental units, 10,725 for-sale public units, and 17,183 private units.

Office lull: Office construction slowed down in 1996 with only 432,000 sq ft of space built in Central, 216,000 sq ft in Wanchai/Causeway Bay, and 54,000 sq ft in Tsim Sha Tsui—say real estate consultants Jones Lang Wootton. In 1997 these numbers are expected to [illegible] to 1.5 million sq ft, 432,000 sq ft, and 324,000 sq ft respectively, and then higher in 1998.

On exhibit: Of the projects to be complet[illegible] in Hong Kong this year, occupying center stage is the highly sculptural extension to the Hong Kong Convention and Exhibition Centre (HKCEC). Not only does the building figure prominently on Hong Kong harbor's skyline, but it is the site of the June 30 handover ceremony. Designed by Hong Kong firm Wong & Ouyang and Skidmore, Owings & Merrill's Chicago office on 16 acres of reclaimed land in the Wanchai district, the extension's most distinctive feature is an uplifting curved roof inspired by seabirds in flight. A total of 683,700 sq ft of exhibition halls, convention hall, meeting rooms, and multileveled atriums are housed beneath what is reportedly the largest curved roof in the world.

New clothes for new roles: The reversal of roles for Great Britain and China in Hong Kong has led to the opening of two symbolic structures this year: the Ministry of Foreign Affairs Building for the People's Republic of China, designed by Dennis Lau and Ng Chun Man, and the new British Consulate-General/British Council Building designed by Terry Farrell, both sited on the slope beyond Hong Kong Park. The two complexes reflect conceptually different views of their respective cultures. The Ministry of Foreign Affairs Building is a Modern tower, enveloped in the glossy finishes that are characteristic of today's Hong Kong. By contrast, the British Consulate complex wraps midrise buildings in non-reflective kirkstone slate and white-and-dark-gray granite to convey a sense of "Britishness."

View from the top: Sited atop Hong Kong's famous Peak is a new crescent-shaped building resting on four massive piers (opposite). The Peak Tower Project—a retail complex, observation station, and terminus of the celebrated Peak tram—was designed by Terry Farrell.

Shop walk: Miami-based Arquitectonica is working with Dennis Lau and Ng Chun Man on its first project in Hong Kong, a 912,600-sq-ft shopping mall in Kowloon called Festival Walk that will have carved atriums reminiscent of "canyons, rivers, and glaciers."

Extrudable city: Like layers of theater scrim that successively alter a stage

Top: Ferry terminal by Anthony Ng (foreground), skyscraper by Pelli. Above: New airport. Opposite: Peak project by Farrell.



VIETNAM

GDP, 1996: *$23.2 billion*
GDP growth, 1996: *9.3 percent*
Projected GDP growth, 1997: *8 to 10 percent*
Inflation, 1996: *4.5 percent*
Population: *77 million*
Source: The Vietnam Business Journal
Normalizing relations: *Two events that should boost the confidence of international businesses are the normalization of diplomatic ties with the U.S. and Vietnam's attempt to join the World Trade Organization (WTO). Vietnam and America have started bilateral negotiations covering copyright laws and most-favored-nation trade status. Pete Peterson, the first U.S. Ambassador since 1975, assumed his post earlier this year. Vietnam's application for membership in the WTO will require multilateral negotiations with WTO member countries and, if successful, will allay investors' fears of long-term accountability and stability.*

scene, Hong Kong's century-old tradition of land reclamation has forced formerly visible structures on Hong Kong's harbor line to be hidden by the new. There are already 1,633 acres of existing and committed reclamation areas along Hong Kong's harbor front, and an additional 1,571 acres of reclaimed land have been proposed for Green Island, Central, Wanchai, and South East Kowloon, among other locations. In fact, reclamation plans are so extensive that a number of alarmed Hong Kong residents are voicing their concern. Says Legislative Councillor Christine Loh, "Hong Kong's magnificent harbor is fast shrinking. If the government has its way, the harbor will become a river."

More than just an airport: Although much media attention has been showered on the new $1.3 billion, 5.56 million-sq-ft Chek Lap Kok airport terminal, master-planned by Greiner-Maunsell and designed by Norman Foster's Asia office on 3,083 acres of reclaimed land off Lantau Island, the most profoundly felt modifications will reach deeply into the infrastructure of Hong Kong and Kowloon. In fact, when the airport opens in April 1998, a departing traveler's airport "experience" will actually begin long before he or she ever reaches Chek Lap Kok. Arriving by subway, bus, ferry, taxi, or automobile, passengers will enter two new express-rail terminals—one in the Central district (designed by Ove Arup & Partners' Hong Kong office along with Rocco Design) and one in Kowloon (designed by Terry Farrell). At either station, the traveler checks luggage and receives a boarding pass at the In-Town-Check-In Hall before proceeding to a railway platform, from where trains will zip over to the airport. The rail route from Hong Kong Station will go beneath Victoria Harbor to Kowloon and Tsing Yi Stations and over the newly constructed Kap Shui Mun and Tsing Ma Bridges—the latter, at 1.36 miles, will be the longest road-and-rail suspension bridge in the world. In 23 minutes, the passenger will go from Central to the three-quarter-mile-long main terminal of Chek Lap Kok.

Seeding future growth: The airport project will also have a profound impact on development throughout Hong Kong. For example, coupled with the construction of the express-rail line is that of a second rail route, the Tung Chung Line. Together, the rail lines are moving Hong Kong's development westward onto Lantau Island and are seeding the development of a new satellite community, the Tung Chung New Town, which is rising from an old fishing village and is projected to house 200,000 people by 2010. Also under way are the developmental stirrings of a 49-acre band of reclaimed land in Central that will include ferry piers, retail, hotel, and office towers, and a landmark 88-story skyscraper being designed by Cesar Pelli. *Zofia Rybkowski and John Seel in Hong Kong*

The economic boom of 1993 and 1994 is over, and in 1996 the number of approved foreign-investment licenses dropped from 406 to 332. Responding to foreign investors' concerns about rapidly changing and sometimes obscure approval procedures, the National Assembly passed a decree in November designed to streamline the process and put a greater burden on the Vietnamese government to respond quickly. The new foreign investment law, however, also levies a tax on all imported building materials. It is not clear whether this tax will be applied to previously approved projects and quantities of material ordered before June 1. But this section of the new law will have a direct effect on the feasibility and costing of future projects.

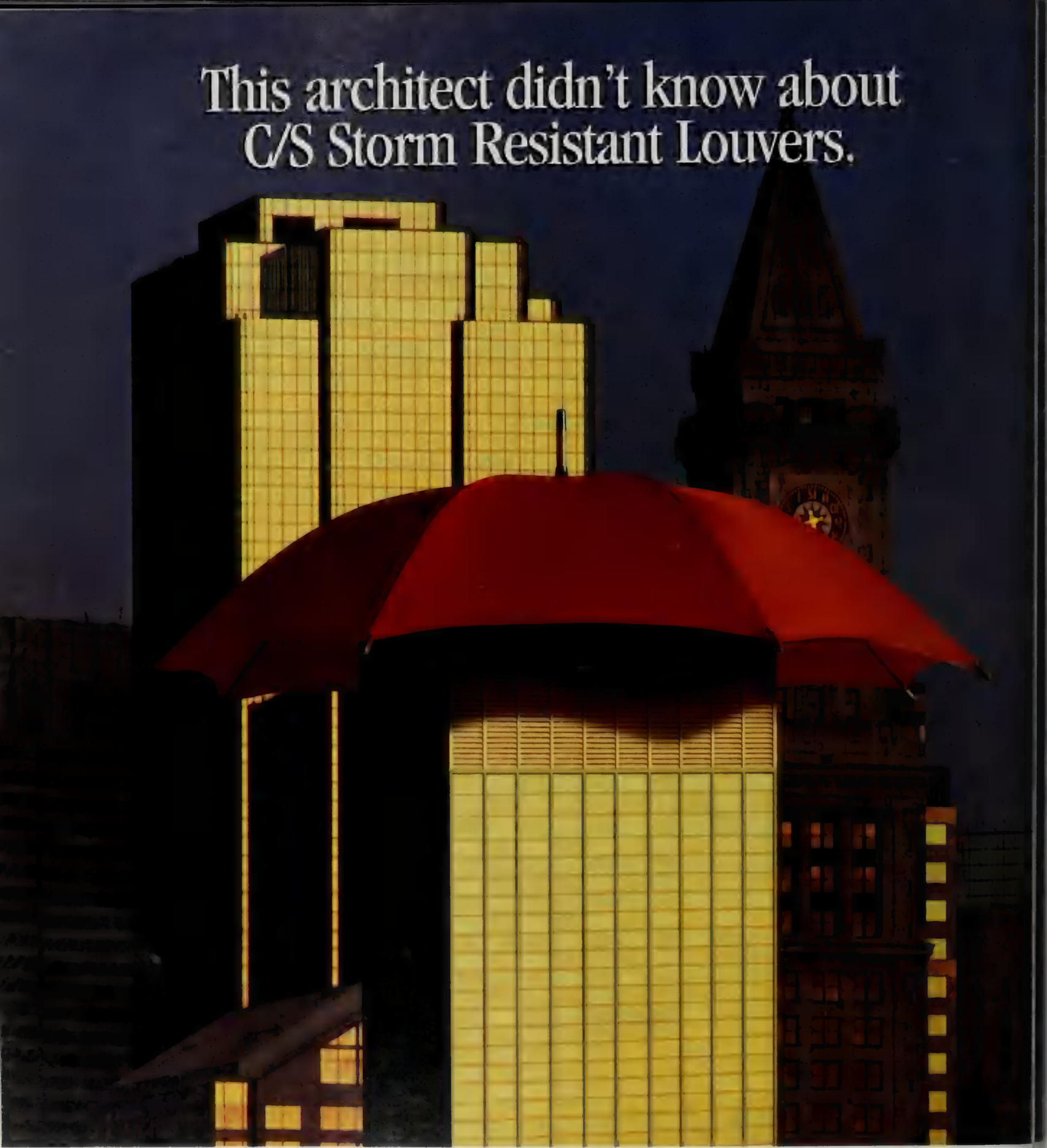
Construction activity: At present 1,027 of the 1,661 licensed construction projects are in the industrial or infrastructure sectors. Many of the industrial projects are located in the 27 industrial zones and three economic processing zones (EPZ). These EPZs are designated areas where materials can be imported, value added, and exported tax free. There are currently two more EPZs on the boards in Vung Tao and Hai Phong, the major harbor areas for Ho Chi Minh City and Hanoi respectively.

Road work: Vietnam is in great need of all types of infrastructural improvements. It is estimated that $5 billion will be spent on improving roads from 1996 to 2000, with an additional $23 billion spent in the following 10 years. Presently, only 13 percent of the country's roads are paved and sealed. The first projects will be Highway 1, linking Hanoi to Ho Chi Minh City, and Highway 5, linking Hanoi to Hai Phong.

Expanding hospitality: In Ho Chi Minh City, the supply of international-standard hotel rooms is expected to grow from 2,405 in 1996 to 5,376 by 1998. In Hanoi, the number should grow from 1,023 to 4,895.

Sustainable development: With a huge rural migration to the cities and a jump in the number of motor vehicles, sustainable development has become a main topic of discussion. The population of Ho Chi Minh City is expected to increase from 4.7 million in 1996 to 7.2 million by 2005. To accommodate all these people, the government opened five new districts for development in April and will open two more in 1999 for a total of 86,000 acres. In the capital, the Hanoi Planning and Development Control Project, which is sponsored by the Australian fund AusAid, is working with the city to preserve the French and Ancient Quarters and encourage appropriate development there. Meanwhile Daewoo is developing Hanoi New Town on 49,000 acres north of downtown. The project is being masterplanned by Bechtel. Nikken Sekkei, SOM, and Rem Koolhaas recently made design presentations for separate parcels on the site. *Joshua Levine in Ho Chi Minh City*

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SINGAPORE

GDP, 1996: *$93.4 billion*
GDP growth, 1996: *7 percent*
Projected GDP growth, 1997: *7.3 percent*
Inflation, 1996: *1.4 percent*
Population: *3.04 million*
Political overview: *While Singapore has established itself as an economic power in Asia and has demonstrated its political stability (returning the Peoples Action Party to power for a ninth term this January), it displays an almost visible angst. Singaporeans are continually urged by the government and media to maintain their global competitiveness. There are warnings of the dire consequences of an economic slowdown and the increasing competitiveness of its neighbors, who offer low wages and abundant labor. As a result, Prime Minister Goh Chok Tong announced last year the formation of a panel to carry out a comprehensive review of Singapore's economic competitiveness.*

In 1991 the Urban Redevelopment Authority published its Revised Concept Plan, which offers a vision for Singapore's development into the 21st century. Singapore has been divided into 55 planning areas, each of which is preparing a detailed Development Guide Plan (DGP). The planning methodology used tends to homogenize the landscape, offering little difference between urban and rural areas, and between one new town and another. The DGPs already completed suggest that this seamless merging of areas will continue unabated.

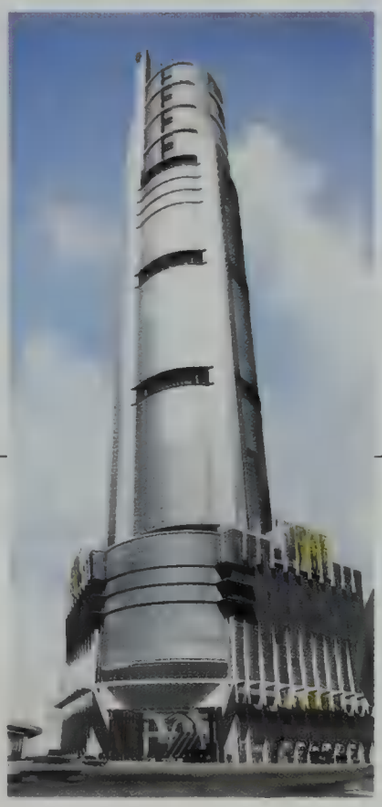
A new downtown: In 1996 the Urban Redevelopment Authority (URA) issued a plan for a new downtown to be built on reclaimed land to the east of the existing business district. According to the plan, 28 million sq ft of commercial space could be built, along with infrastructure development (including light-rail) and 26,000 new housing units. The sale of land for the first project, a 1.62 million-sq-ft commercial development, will happen this year and a new 540,000-sq-ft National Trade Union headquarters tower will start construction on an adjacent site. The goal is to create a downtown that integrates working, living, and recreation.

New hospital is delivered: In March the new Kandang Kerbau Women's and Children's Hospital was completed by Akitek Tenggara, one of Singapore's most respected firms. The practice, which was set up by Tay Kheng Soon and Chung Meng Ker in 1976, has been at the forefront of developing a Modern architectural language for tropical Asia. Working with hospital-design consultants McConnel Smith and Johnson and the Singapore Public Works Department, Akitek Tenggara designed a sun-shading system for the 1.15 million-sq-ft hospital that uses lightweight-metal louvers and maintenance gangways (below).

Controversial arts complex: Construction of the new national arts center, designed by Michael Wilford and Partners in association with Singapore-based DP Architects, started in August 1996. Known as The Esplanade–Theaters on the Bay, the project will include a concert hall, lyric theater, and three smaller theaters. The project's blending of East and West has been the subject of heated debate in the Singapore media, which has expressed concern over the penetration of Western values into every aspect of life. *Robert Powell*



PHILIPPINES



GDP, 1996: *$83.3 billion*
GDP Growth, 1996: *5.5 percent*
Projected GDP Growth, 1997: *8.5 to 10 percent*
Inflation, 1996: *8.4 percent*
Population: *68 million*
Economic overview: *A dramatic increase in direct foreign investment, along with the robust performance of the finance, transportation, and communications industries, is pushing the Philippine economy forward.*

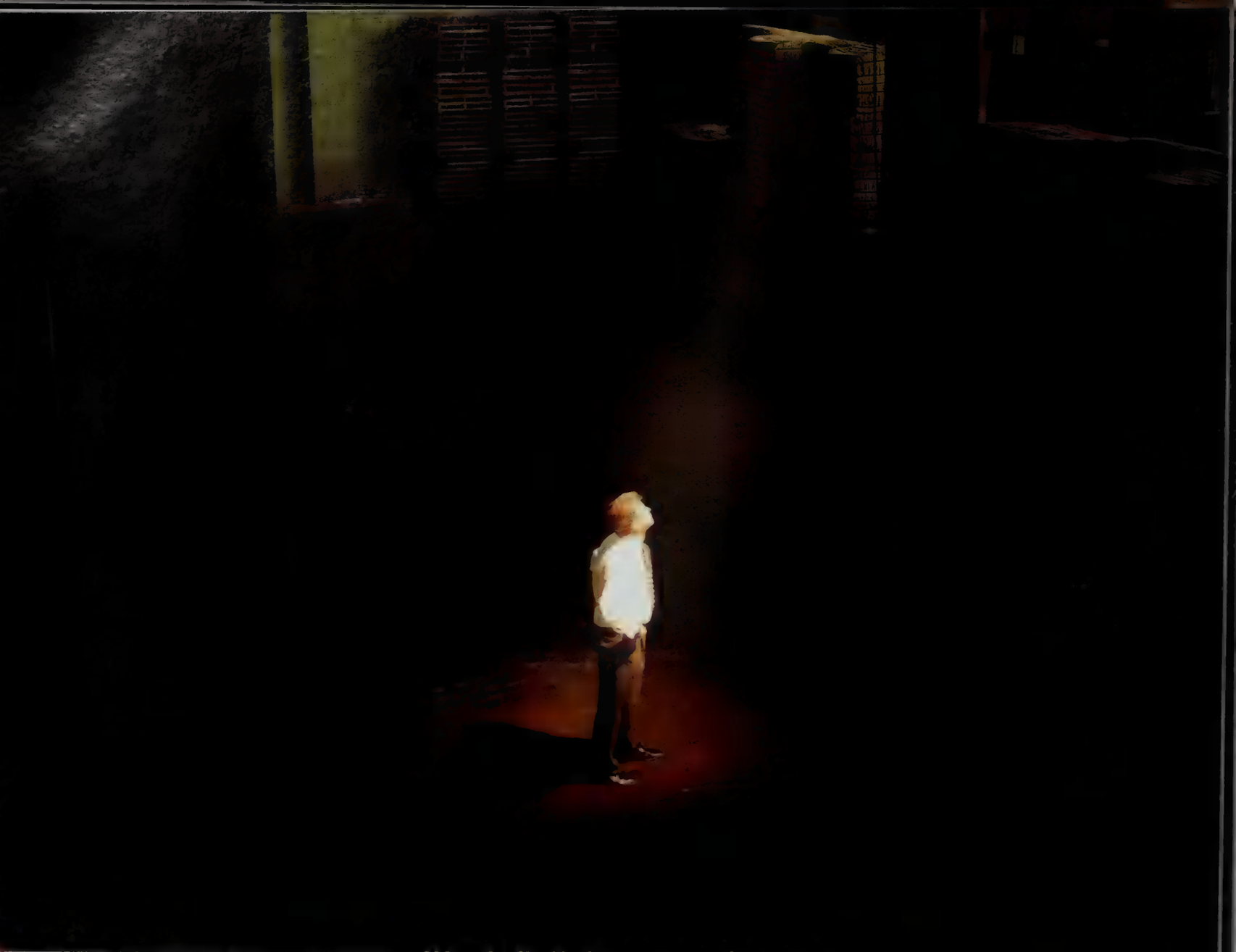
The brainchild of President Fidel Ramos, Philippines 2000 is a plan to generate GDP growth of between 8.5 and 10 percent and develop 1.1 million new jobs each year, raising this nation to "newly industrialized country" status by the turn of the century. As they prepare for elections in 1998, Filipinos wonder who will succeed President Ramos, who is not allowed to run again. Among the frontrunners are Vice-President Joseph Estrada, Defense Secretary Renato de Villa, House Speaker Jose de Venecia, and Senators Gloria Macapagal-Arroyo and Edgardo Angara. There is some movement to amend the constitution to allow Ramos to run for a second term, but many doubt this will happen.

Construction overview: Rapid economic growth in 1995 and 1996 created a huge surge in demand for office space, especially among multinationals and newly established corporations. In 1996, 2.8 million sq ft of office space was built in the main business districts of Makati and Ortigas Center. It is projected that between 1997 and 2000 another 10 million sq ft of Class-A office space will be added in these areas.

Homeward bound: An increasing number of overseas Filipino architects who left the country in the 1980s are returning home to take part in the current building boom. Architects such as Bong Recio and Carmelo Casas, who started their firm Recio + Casas in Hong Kong, are now bringing their expertise to the local scene.

Projects: Bonifacio Global City, a 1,085-acre development in Manila, is one of the most visible showcases of the Philippines' building boom. It is envisioned as an "intelligent city" catering to the needs of a globalizing Philippine economy. Planning and design of the project is a joint effort of Filipino and foreign consultants, including HOK, Planning Resources and Operations Systems, and Espina-Perez-Espina and Associates. Two other busy business districts are Makati and Ortigas Center, where premiere office buildings such as One Ayala Triangle (designed by L.V. Locsin and SOM); Jaka Tower (W.V. Coscoluella and HOK); and E.G.I. Tower, designed by RMJM of Hong Kong (photo above), are going up. *Abelardo M. Tolentino, Jr., in Hong Kong*

Singapore hospital by Akitek Tenggara (left). E.G.I. Tower in Manila by RMJM (above).





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Australia
GDP, 1996: *$335.5 billion*
GDP growth, 1996: *2.4 percent*
Projected GDP growth, 1997: *3.75 percent*
Inflation, 1996: *1.5 percent*
Population: *18.4 million*
Economic overview: *Although Australia is in a growth phase, with inflation and interest rates low, these favorable conditions are not expected to outlive 1997. And unemployment remains relatively high at 8.7 percent.*

New Zealand
GDP, 1996: *$61.4 billion*
GDP growth, 1996: *2.8 percent*
Projected GDP growth, 1997: *2.6 percent*
Inflation, 1996: *1.8 percent*
Population: *3.66 million*
Economic overview: *Like Australia, New Zealand is experiencing a period of moderate growth and low inflation. And like the Olympics, the America's Cup yacht race in 2000 in Auckland is pushing up waterfront property prices.*

Despite Australia's low population growth of 1.3 percent per year, the residential market is strong and prices are expected to rise up to 12 percent a year for the next three years. With apartment living catching on, most residential construction is in big cities.

Memories of the bad old days: Michael Peck, chief executive officer for the Royal Australian Institute of Architects, says the architectural profession is still "climbing out of the severe recession of 1993" and is trying to cope with government procurement policies that are pushing fees down. Another fallout has been the exodus of skilled managers and professionals, which has left a tight labor market today.

Preparing for the games: Construction is racing along for the 2000 Olympics in Sydney. The main stadium, designed by Bligh Lobb Sports Architecture, will have 80,000 permanent seats and 20,000 temporary ones, making it the largest Olympic arena to date. Smaller firms working on projects include James Grose, who is designing an exhibition center, and Alexander Tzannes, who is designing a ferry wharf.

Piano down under: The most talked about project in Sydney is a $400 million complex in the center of town designed by Renzo Piano. Including a 34-story office tower and a 16-story apartment building, the project was commissioned by Australian developer Lend Lease and will be the Italian architect's first building in Australia. The towers will be wrapped in curved skins of nonreflective glass said to be inspired by Jorn Utzon's Opera House.

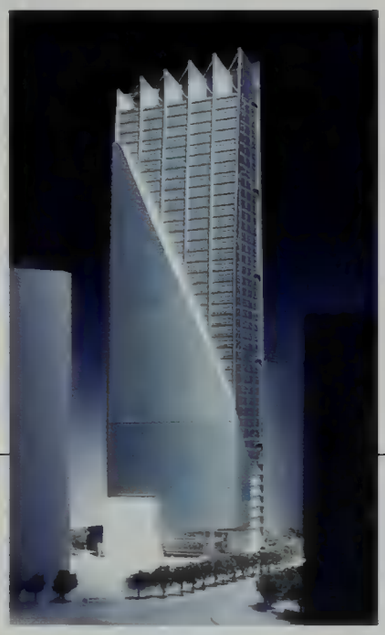


New Zealand projects: The 1,082-ft-high Auckland Sky Tower by Craig Craig Moller recently opened, becoming the tallest structure in the country. Also in Auckland, Hassell Pty is designing a large project to include a public plaza, 13 highrises, an underground transit interchange, and renovated warehouse buildings.

Graham Jahn and Ann-Elise Hampton in Sydney

Renzo Piano's project in Sydney (left).

SOUTH KOREA



GDP, 1996: *$484 billion*
GDP growth, 1996: *7.1 percent*
Projected GDP growth, 1997: *5.5 percent*
Inflation, 1996: *5 percent*
Population: *45.5 million*
Economic overview: *While Korea has a high savings rate, great export capabilities, and a well-educated workforce, economic growth for 1997 will slow down to about 5.5 percent, the lowest increase in 15 years.*

After years of leading Asia's "tiger" economies, South Korea has stumbled recently. Growing foreign debt, weakened exports, and bankruptcies at certain units of the country's industrial conglomerates (or *chaebol*) have shaken Korea's vision of progress. And dropping real estate prices have left Korean lenders with $11 billion in troubled real estate and *chaebol* loans, according to *Business Week*.

Politics: President Kim Young Sam has responded with reforms, including some deregulating of the financial system, opening markets to foreign competition, allowing greater foreign ownership of Korean stocks, and trying to reduce the power of the *chaebol*. But a cloud of corruption hangs over the scene, casting a shadow on politics as usual.

Foreign invasion: As it has been in recent years, the hottest issue in the design community today is the influx of foreign firms. This trend was highlighted by a symposium last year sponsored by Samsung subsidiary Samwoo, one of the largest architectural firms in Korea. Rem Koolhaas, Mario Botta, Jean Nouvel, and Terry Farrell participated in the symposium, each presenting his own design for a project for Hannam that is being coordinated by Samwoo. Jinai Kim, the head of the local architectural and urban design firm Seoul Forum, criticized the event, saying, "What we don't need is a show featuring self-serving architects, a hanging-back coordinator, and a flamboyant patron."

Fashion show: Kohn Pedersen Fox has designed Seocho Fashion Center in Seoul, an 842,000-sq-ft, steel-frame tower with fashion-themed retail, exhibition, and office space (photo above). Construction starts this year and will be completed by the year 2000.

Emerging types of housing: After three decades of living in monotonous concrete apartment towers, some Koreans are buying "garden houses"—wood-frame houses with spacious front yards in satellite cities and outlying areas of Seoul. At the other extreme, some young professionals are moving into "officetels," center-city live-work spaces. For the first time, Koreans are getting some variety in their housing.

Jaepil Choi in Yongin, South Korea

Seocho Fashion Center by KPF in Seoul (above).

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THAILAND

GDP, 1995: *$166 billion*
GDP growth, 1995: *8.6 percent*
Projected GDP growth, 1996: *6.8 percent*
Inflation, 1995: *5.8 percent*
Population: *60 million*
Economic overview: *Thailand's economy slowed down in 1996, with growth falling below the 8 percent plus average of the last decade. Exports, the engine of economic growth since the mid-1980s, were flat last year. The poor performance was blamed on low worldwide demand for electronic products, the loss of business to countries with very low wages, new trade barriers to some nations, and the appreciation of the local currency versus the Japanese yen. The central bank is projecting 7.7 percent export growth in 1997, but there are as yet no clear signs of recovery. The 1996 deficit is estimated at $15.4 billion, or 8.3 percent of GDP, up from 8.1 percent in 1995.*



A general election last November replaced the previous Banharn Silpa-archa administration, whose perceived instability and incompetence undermined the confidence of both foreign and domestic investors. Although full of promises to put the economic house in order, the new government has still to prove itself.

Shaky financial system: The root of the problem, however, stems not so much from falling exports and past government mistakes as from Thailand's financial institutions, which have become alarmingly burdened by bad property loans arising from years of overbuilding. In March the government established a $4 billion property-loan bailout agency, but its effectiveness remains to be seen.

Overbuilt construction markets: According to a Bangkok Post report, office and retail space in Bangkok has increased by more than 400 percent over the last six years. In 1996 new demand amounted to some 5.9 million sq ft, while supply totaled 6.48 million sq ft. In the housing sector, it is estimated that Bangkok has about 400,000 vacant units and a similar number under construction. Worst hit are condominiums, which account for about half the vacancies. In spite of overcapacity, the number of hotel rooms in the Thai capital is expected to increase by 5,000 in 1997. Although most analysts do not predict a quick recovery, the property business is viewed as cyclical and should pick up eventually. The immediate problem for developers, however, is not just selling property but also securing financing.

Chaos reigns: "The boom is definitely over for a while," remarks Bangkok-based architect Robert G. Boughey. "Bangkok is so overbuilt." Boughey also sees Bangkok's traffic and infrastructure chaos as inhibiting development. "It's the same old story, and there'll be no solution until the elevated train system [skytrain] is completed in a couple of years." Architect Ongard Satrabhandhu is similarly pessimistic. He says a shortage of jobs is causing several architectural firms to downsize, and he believes it will be two or three years before things get better. Even then he sees little future for quality architecture in Bangkok. "The skytrain will ruin the city, what's left of it, that's for sure," he says.

But optimism isn't dead: Striking a more positive note is Dr. Sumet Jumsai of SJA+3D architects. While agreeing there is currently a slowdown, he suggests that "the base is so big that there is still a lot happening." He adds that "architecture is healthy because we lack stringent bylaws, which is a blessing in disguise, as it allows architectural experiment." He further believes the skytrain will make a big difference to traffic flow in the city, and by the end of the century, "Bangkok should be in better shape." A growing awareness of environmental issues is also taking hold, as seen at the Association of Siamese Architects' annual convention held in March. "We tried to prompt people to think about the city and to develop the environment for a more suitable way of living," says Association President Chamnian Sasibutra.

Troubled new town: The ambitious Muang Thong Thani development, with some two dozen residential and commercial highrises on the outskirts of Bangkok, has sold less than 50 percent of its units, and much of what has been sold was bought up for speculation and remains mostly unoccupied. A recent and controversial plan by various government agencies to relocate to Muang Thong Thani may save the project from going under; other big developments will be less fortunate.

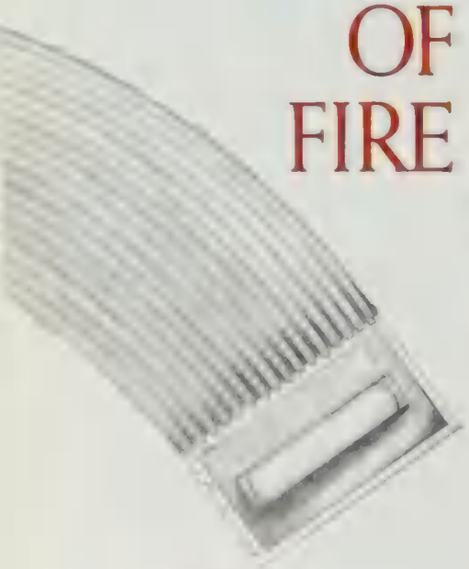
Pachyderm design: The most talked about building in Bangkok today is the Elephant Tower, designed by Ongard Satrabhandhu and due for completion by year end. Because of site constraints, the development was originally conceived as three simple towers until the architect decided to connect the structures at the top to provide more space and a recognizable profile. The client then suggested the "M" shape could be transformed into the abstract form of an elephant, complete with two round windows for "eyes," symbolic ears, and forward protrusions for tusks (designed as usable space). The resulting structure offers 832,000 sq ft of net space in three 32-story towers with 8-story-high bridges connecting the top. The first five floors of the podium are mostly retail. The architect says he would have preferred a more abstract elephant form.

Tallest buildings: The 61-story Thai Wah Tower II on Sathorn Road, which had its official opening earlier this year, is currently Bangkok's tallest building at 647 ft. Designed by Architrave Design & Planning, the pencil-thin building has 615,000 sq ft of gross area. The tower combines the Westin Banyan Tree hotel with 30 floors of offices. Poised to surpass Thai Wah Tower II is the 94-story, 1,518-ft Baiyoke II Tower, set to be completed this year. Designed by Aroon Chaiseree of Chulalongkorn University, this is a reinforced-concrete building wrapped with a reflective-glass curtain wall. The building has a garment center with 501 shops and the Baiyoke Sky Hotel, topped by a telecommunication tower (see rendering on page 81). *John Hoskin in Bangkok*

Elephant Building in Bangkok by Ongard Architects is nearing completion (above).

THEY LEFT OUT A FEW THINGS WHEN THEY NAMED IT THE RING OF FIRE





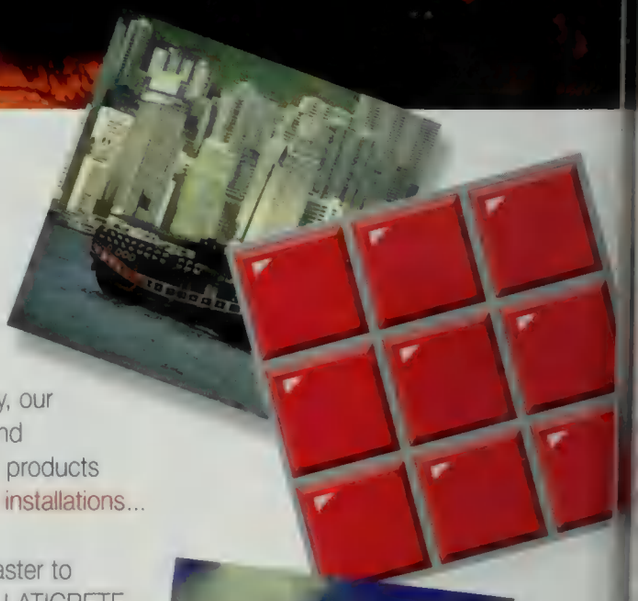
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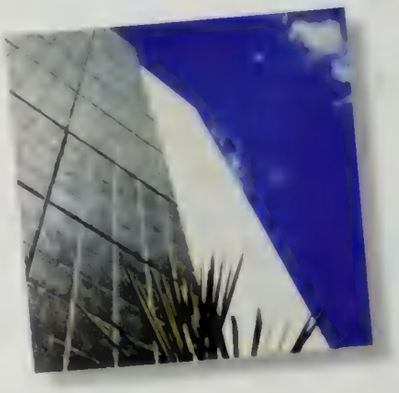


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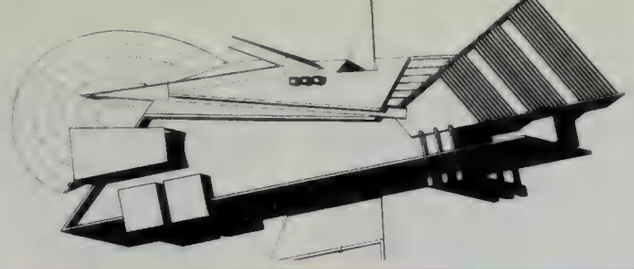
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CIRCLE 30 ON INQUIRY CARD

JAPAN



GDP, 1996: *$4.4 trillion*
Growth GDP, 1996: *2.9 percent*
Projected GDP growth, 1997: *1.1 percent*
Inflation, 1996: *0.2 percent*
Population: *125.9 million*
Economic overview: *"The Japanese economy has not really taken off from the bottom," laments Hiro Tanamachi, managing director of Hellmuth, Obata & Kassabaum's Tokyo office. And with only 1.1 percent real GDP growth anticipated in fiscal year 1997, the outlook does not appear good for either private or public spending, according to Salomon Brothers in Tokyo. This projection is significantly lower than the 2.9 percent growth estimated for fiscal 1996, but is an improvement over an earlier forecast of 0.7 percent and reflects the weakened yen and consequent increase in net exports. Salomon Brothers expects the economy to resume a normal pace of growth in 1998.*



Despite the sluggish economy, home builders enjoyed something of a miniboom in 1996. BZW Securities in Tokyo reports that housing starts increased a whopping 10 percent. This reflected a rush to build before April, when the nation's consumption tax was raised from 3 to 5 percent. This tax affects all construction-related goods as well as popular prefabricated housing. Low interest rates and dropping residential land prices also spurred builders to break ground. Yet because the fundamental demand for new homes remains unchanged, BZW anticipates a backlash decline of almost 10 percent this year.

Commercial building: The looming consumption-tax hike also stimulated a burst of activity in commercial construction orders in the first half of fiscal 1996. But this was followed by a period of flux, and now there is no sign of recovery on the horizon, reports Salomon Brothers. Even though the office-occupancy rate in central Tokyo rose slightly in 1996, orders for new office buildings, which comprise about 30 percent of all private construction orders, are expected to remain low. With Tokyo's commercial land prices 70 percent lower than their "bubble" period peak, some believe that prices have bottomed out and real-estate investment will pick up. But the Japanese have heard that story before.

Public works: While new public works are still coming out of the ground at an impressive rate, funding for future projects is drying up. Orders for government-sponsored work soared by 10.6 percent in the first half of fiscal 1995, but then fell 5.1 percent in the first half of fiscal 1996. The reason for this precipitous drop is that the government is no longer trying to pump-start the economy with public works and the great Hanshin-earthquake restoration efforts have already peaked.

Foreign architects: For foreign firms, the picture is particularly bleak. "Again the Japanese market is trying to close itself off," says Hiro Tanamachi, managing director of HOK's Tokyo office. In January 1996, the Japanese government replaced its Major Projects Arrangement (MPA) program with guidelines set by the World Trade Organization (WTO). The MPA had helped some foreign firms gain a footing in the Japanese market by enabling them to pursue government work by forming joint ventures with local firms. But WTO guidelines release Japanese firms from these obligatory relationships and instead set a design-fee threshold of 250 million yen ($2.17 million) for projects that must consider foreign participants—a threshold that few public projects will meet. To make matters worse, many government agencies no longer allow Japanese firms to join forces with foreign ones. Consequently, many foreign firms have shifted their marketing strategies from public- to private-sector work. Fortunately, some industries, such as health care and retail, still need U.S. expertise. And when the economy finally picks up, renovation jobs are expected to increase, creating more outlets for foreign firms.

Swimming along: One firm still riding the crest of the public-building wave is Jun Aoki & Associates. One of the Tokyo's firm's latest accomplishments is the Yusuikan public swimming complex, completed in January. Located in Toyosaka, a small town north of Tokyo, the 25,000-sq-ft building sits amid a newly created water park. Years ago the site was laced with canals and lagoons which were an integral part of daily life. Sadly, these waterways have all but vanished due to land reclamation. Determined to preserve the one remaining lagoon, the town decided to develop a greenbelt park along its edge. The park will consist of tree groves punctured by round, open recreation areas. One such opening is defined by a reinforced-concrete cylindrical form concealing Yusuikan's 83-ft-long rectangular pool and related facilities.

Memorializing a writer: Prompted by Daijiro Hashimoto, the governor of Kochi Prefecture and the younger brother of Japan's prime minister, to raise the quality of public buildings, the town of Ogata hired Tokyo architect Norihiko Dan to design a memorial hall for local writer Kambayashi Akatsuki. The 24,000-sq-ft facility will house standard memorial fare such as library, lecture hall, and archives when it is completed later this year. But the question that interested Dan was "how to relate architecture to the main theme of literature." He met this challenge by designing the building as a "hill of memory" and blending it with Ogata's landscape, a central theme in Kambayashi's work (top).

Teaching health care: When architect Riken Yamamoto won the limited competition for Saitama Prefecture's University of Nursing and Welfare (above), he gained the chance not only to design a building but to influence the school's curriculum as well. On opening in 1999, the 60,000-sq-ft school will train physical therapists, dental hygienists, and midwives, in addition to nurses. Laboratories and training rooms for all departments will be on the first floor, where students from different disciplines can mingle. These shared facilities will form a base, giving rise to separate pavilions for university and junior-college programs, which will be linked by a common, outdoor space. *Naomi Pollock in Tokyo*

Kambayashi memorial in Ogata by Norihiko Dan (top).

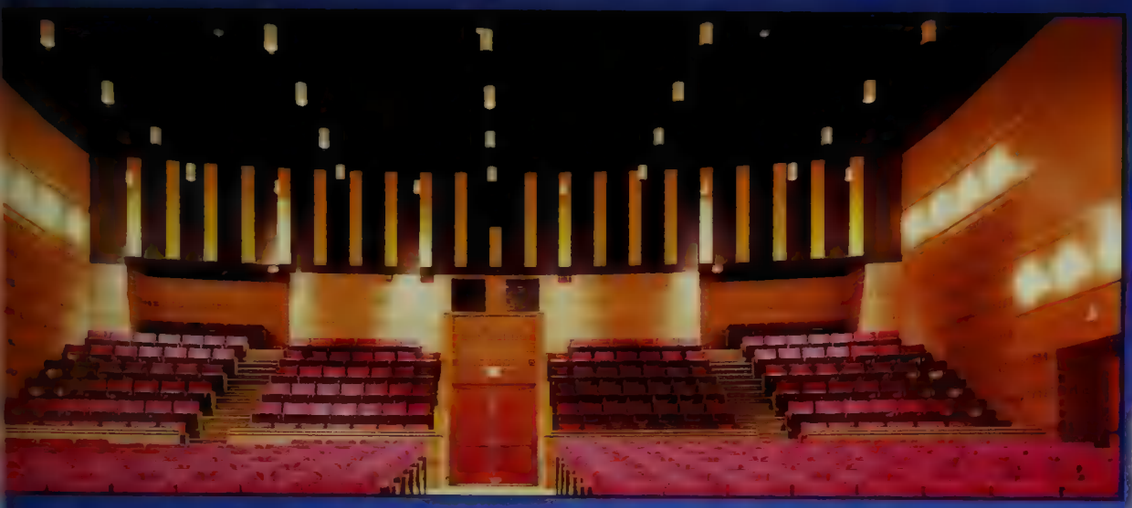
Saitama nursing school by Riken Yamamoto (above).

Pacific Rim Manufacturers Directory

This is a quick marketing reference chart to July 1997 advertisers who do business in Pacific Rim countries.

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Laticrete International Inc. Ad page 94 Reader Service # 94 Tel. 203-393-0010 / Fax 203-393-1684	●	●	●	●	●	●	●	●	●	●	●	●
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Marvin Windows & Doors / Int'l Division Ad pages 38 - 39 Reader Service # 20 Tel. 218-386-1430 ext. 1336 / Fax 218-386-4028	●	●	●				●	●	●		●	
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CM ARCHITECTURE





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Concrete Masonry Aesthetics + Economics

Above: Color, patterns and texture make this performing arts center's exterior visually exciting and unique, overcoming the potential monotony of vast wall expanses.

Opposite: Reverse view of the entrance.

Photos by Lawrence S. Williams, Inc.

Across the United States, design professionals are turning to concrete masonry to achieve a variety of design goals. Whether it's durability or economy that's desired, concrete masonry units add color, texture and interesting patterns in a wide range of finishes that can almost needs. Concrete masonry is being specified for innumerable projects showing block's best advantages.

Cumberland County Performing Arts Center

Vineland, New Jersey

A large volume of wall space characterizes the exterior of most performing arts buildings. The Cumberland County Performing Arts Center in Vineland, New Jersey, is no exception. What is different about this structure, however, is that its visual impact is not imposing.

"As people drive by, there is a real visual impact. Passers-by may not necessarily visit the center, but it is recognized by everyone."

-Fred Peltier, Project Manager
H2L2 Architects/Planners

Rather, by creatively utilizing concrete masonry units, the building's design incorporates fine detail and visual activity in its facade.

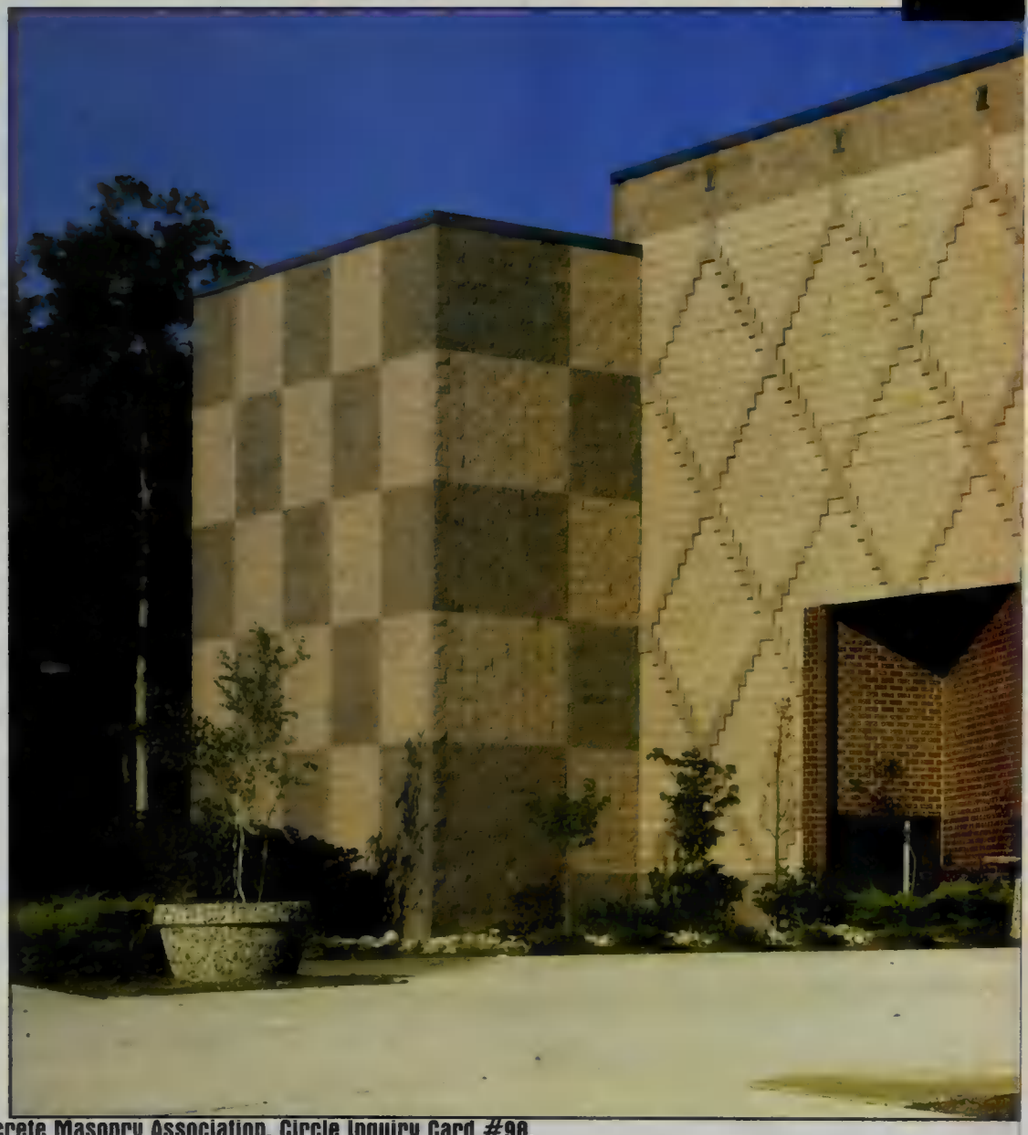
"As people drive by, there is a real visual impact," says Fred Peltier, project manager with H2L2 Architects/Planners, Philadelphia, Pennsylvania. "Passers-by may not necessarily visit the center, but it is recognized by everyone."

Owned by the Cumberland County College, the center serves the greater community with a multi-functional structure that includes a theater, art gallery and classroom wing, all built within a $4.5 million budget.

Concrete masonry was essential to achieving the desired aesthetics and permanence, says Peltier. A mix of split-face and burnished units in buff and red tones complement the area's sandy natural landscape. Working closely with the block manufacturer, H2L2 achieved the precise colors envisioned.

Concrete masonry units were utilized on the interior as well. "The patterns and colors inside the theater worked beautifully. In theater performance you want reverberation of sound within while eliminating outside noise," Peltier explains. Concrete masonry assisted in making that performance space work while improving high-quality acoustics."

Peltier says concrete masonry performs superbly because designers get the economy of having architectural detailing built right into the working structure of the building. This is a time and cost saver, he says. "In addition, one can achieve an interesting play on light and shadow when combining different concrete masonry unit types."



Euro Bath + Tile Showroom and Lofts

Denver, Colorado

"It was one of the first... creative buildings in the area"

-William Moon, Associate
David Owen Tryba Architects



An abandoned 1940s metal building and adjacent vacant lot in a highly urbanized and industrial section of metropolitan Denver was the site for a project to revitalize the community, while maintaining the city's history and architectural richness. With the community in mind, Denver-based architectural firm David Owen Tryba Architects designed a rustic retail and residential showcase in concrete masonry.

"This was a unique mixed-use program including rental lofts and a wholesale plumbing showroom," says William Moon,associate with the firm. According to Moon, sandblasted units were specified for this project because of the economy and design aesthetics offered by concrete masonry, as well as low maintenance coupled with high durability. By utilizing standard construction materials and methods, but employing them in a new, creative way, the project was achieved within a modest $65 per square foot budget.

"By exposing the aggregate, we achieved the appearance of natural stone. Split-face units were inserted for horizontal accent banding," says Moon. The creation of an interior streetscape based on the grid of the existing structural system was used to set the design of the showroom. A shifted circulation grid and central rotunda feature helped to organize and connect five primary display spaces.

Since this building's construction, the neighborhood has undergone significant change, says Moon. It was one of the first new construction projects that set the tone for creative buildings in the area. "The building lends itself to that. It definitely does not look like an old warehouse," he says.

Concrete Masonry Aesthetics + Economics



levation

novative design with sandblasted concrete masonry units
retail and residential showcase characteristic of this
mmunity.

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Photo by Thorney Lieberman.

Texas Army and Air National Guard at Camp Mabry

Austin, Texas

Located at Camp Mabry in Austin, Texas, the state headquarters for the Texas Army and Texas Air National Guard were planned together within the overall fabric and context of existing camp structures and architectural character. Placing the 150,000-square-foot headquarters building adjacent to the existing historic main building and small chapel without overpowering each in scale and importance were primary design considerations. At the same time, the 7,000-square-foot Air National Guard structure needed to appear as important as the headquarters building. These structures house weapons and include spaces for drills and training exercises.

To achieve these goals, architectural firm PageSoutherlandPage integrated various building forms, open space and circular patterns into a single, unified campus plan, with concrete masonry materials providing a common thread. Each new building appears to be a harmonious campus element, yet each has its own strong identity.

The texture of the concrete masonry units helped balance the scale of the larger building, preventing it from over-





Photo by Ray Dei Tufo, Tufo Hall/Design

whelming the three other structures. This was key in selecting concrete masonry units for the project.

Both new buildings are constructed in a partnering of concrete masonry and galvanized metal. Through layering of the facade treatment and by varying the texture of the concrete masonry exterior walls, the mass of the larger headquarters building is brought into balance with the more delicate scale of the adjacent historic main building.



Above: Split-face and ground-face concrete masonry units add texture to building forms at the Texas Army and Air National Guard in Austin, Texas.

Chandler Reverse Osmosis Facility

Chandler, Arizona

Built to purify industrial water from a neighboring facility, the Chandler Reverse Osmosis Facility was designed by the architectural firm Devenney Associates, Ltd., Phoenix, Arizona, with specified concrete masonry units.

"The ability to use different textures, colors and sizes was a key factor in selecting concrete masonry," says Steve Stack, one of the architects involved with the project's design. "Also, masonry enabled us to use a sealant inside, creating a water-repellent interior surface to withstand high humidity conditions."

In addition, the architects had to consider fire-rating issues. "Concrete masonry allowed us to safely separate hazardous areas from other areas," says Stack, one more reason why it was considered the best product for the job.

Below: Constructed with masonry materials, this water treatment facility utilizes colored, textured concrete masonry units.



End Note

Mount Sinai Hospital

New York, New York

"Because of its finished quality, concrete masonry was the desired material for Mount Sinai Hospital, a primary-care clinic for the surrounding community," says Greg Talmont, designer with Architecture + Furniture in New York, New York.

"The material is affordable for exterior use and of high quality for interior building use," he says, maintaining that the price was extremely competitive with other building materials. Concrete masonry also had the added advantage of offering low cost maintanance. The units' ground face makes the building easier to clean, resisiting permanent damage caused by vandals.



Left: A checkerboard concrete masonry pattern adds design interest to Mount Sinai Hospital's primary care building.

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AFFORDABLE HOUSING

Housing Credit's Future?

ARCHITECTS ARE DEFINITELY UP TO CREATING HIGH-QUALITY AFFORDABLE HOUSING. IT IS THE FUTURE OF THE LOW-INCOME-HOUSING TAX CREDIT THAT IS IN DOUBT.

by Charles Linn, AIA



1

San Francisco, California

Market Heights, a villagelike housing project, steps up a hillside to make the best of a difficult site in the Bernal Heights district.



2

Cambridge, Massachusetts

Auburn Court is a three-story affordable housing complex that fits into its neighborhood so well it seems as if it has always been there.



3

Brooklyn, New York

Northside Terrace Condominium, a series of rowhouses, reclaims a site that had been cleared of housing for industrial use, then abandoned.



4

Los Angeles, California

The Young Apartments, an early 20th-century luxury building, was so run-down it was called "Dracula's Castle." It is now affordable housing.



5

San Jose, California

Plaza Maria's trellises and bright colors have become an icon for this city's downtown neighborhood.

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The money used to purchase these tax credits is given to nonprofit developers to finance housing. Developers submit project proposals to their state agency in hopes of getting a share of these tax credits, which, if approved, might be combined with local, state, and private financing to fund a project. Putting together a workable financing package can take years. Since Congress stopped directly funding low-income housing in the early 1980s, most affordable housing has used these tax credits.

The affordable housing itself is not given away. To qualify, families must make no more than 60 percent of the median income in their geographic area; rent is a fraction of the market rate determined by income. The developers, or their designated property managers, must ensure that tenants meet income qualifications and that the property retain its affordable status and be maintained (in some cases for 30 years or longer), or the tax credits will be revoked.

The low-income-housing tax credit program has had a rocky life. Originally it was enacted by Congress in 1986. After Congress reauthorized the program several times, the Democratic-controlled Congress made it a permanent part of the Internal Revenue Service tax code in 1993. When the Republicans regained control of the Congress, the program's permanent status was revoked once again, and was set to disappear on December 31 of this year, although Congress-watchers seem confident that the program will be reauthorized at least once more.

Critics of the program complain that it is a deficit-reduction shell game: federal funding for public housing is no longer on the government's balance sheet, but the financial benefits for corporations who fund the housing instead of the government are disproportionately large compared to the amount of housing created. The question then becomes: do the poor gain as much from the housing tax credit as the rich? Perhaps a more straightforward method of fundraising, such as the sale of low-interest bonds, would be better. ■



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1 Market Heights San Francisco

AN AFFORDABLE FAMILY RENTAL COMPLEX MAKES THE MOST OF ITS RUGGED SITE WITH A HILLSIDE, VILLAGELIKE DESIGN.

by Charles Linn, AIA

Project: *Market Heights San Francisco*
Owner: *Boomerang Housing Associates*
Architect: *Herman Stoller Coliver Architects—Stuart Stoller, principal-in-charge; Lisa Bruce, senior designer; David Hall, job captain; Robert Herman, FAIA, Susie Coliver, Jane Grover, project team*
Consultants: *Olmm Structural Design (structural); F.W. Associates (electrical); KCA Civil Engineers (civil); SJ Engineers (mechanical); Tito Patri & Associates, Mori Hatsushi & Associates (landscape); Thornburn Associates (acoustical); Devine & Gong (financial)*
General Contractor: *Roberts-Ohbayashi Group*
Developer: *Bernal Heights Housing Corporation*

Project Statistics
Cost: $6.4 million, including $500,000 in street improvements
Gross livable sq ft: 40,618 sq ft
Number of units: 46
Density: 46 units at 52 dwelling units per acre

Set on a steep hillside in the Bernal Heights district of San Francisco, Market Heights was built on a boomerang-shaped lot wedged between two residential streets and San Francisco's oldest farmers' market. This development of affordable family rental housing labors at being a compatible addition to the neighborhood by respecting the scale of its surroundings. Two-story units face the streets, and additional housing steps down the hill toward the market. A mix of flat and scored stucco, wide and thin horizontal siding, and a palette of subtle Mediterranean colors is used to visually break up what might have been an overwhelming building mass if rendered in a single material and color. The overall effect is that a village has been built here.

Unlike many residential buildings in San Francisco, no garage doors face the streets. Instead, autocourts allow access to either four or six garages, and allow a paved space where children can rollerblade or play basketball. Smaller inner pedestrian courts provide places where young children can play. All of the units have access directly from the street or autocourts without shared corridors.

Not in my backyard

As with many affordable housing projects, Market Heights was not built without a fight, from both neighbors who were wary of affordable housing, and city officials who felt the city-owned land should be developed as housing for first-time homebuyers.

"There is a public housing project nearby that was built in the 1940s that was not kept up over the years," says architect Stuart Stoller. "It's very difficult to get people to make the distinction between public housing that is paid for and administered by the government, and affordable housing that is funded by investors and operated by a nonprofit corporation. These nonprofits are going to own these properties for 50 or 60 years. They have to take care of them."

"We actually had agitators attending hearings who were trying to stop the project," says architect Susie Coliver. A local free newspaper joined in to fan the flames of neighborhood protest, but it was never the architecture itself that was in question. "It seems almost amusing in retrospect," she continues. "The articles kept coming week after week—that there was an underground river on the site, a rare snake species that would be threatened, and that the housing would ruin the farmers' market. "



1. *Autocourt (typical)*
2. *Six-unit cluster (typical)*
3. *Playground*
4. *Farmers' market stalls*

SITE PLAN



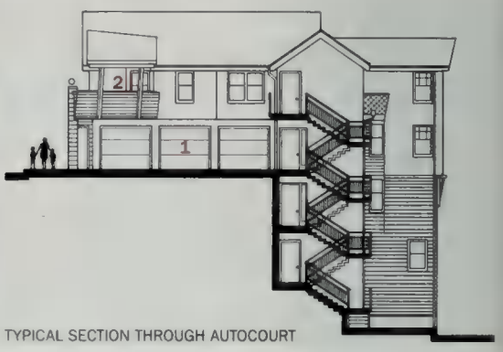
Market Heights' color palette (left) picks up on other dwellings in the neighborhood, and respects its scale. The villagelike quality of the housing seems like a natural extension to the farmers' market. The feared ruination of the farmers' site did not materialize.







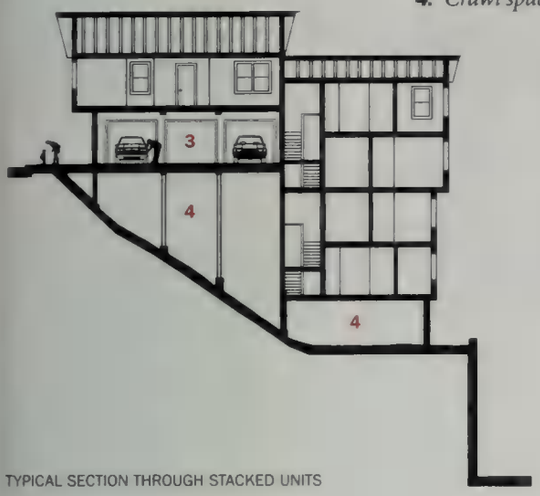
Splayed balconies overhang the auto-courts, which keep cars and playing children off the streets.



TYPICAL SECTION THROUGH AUTOCOURT

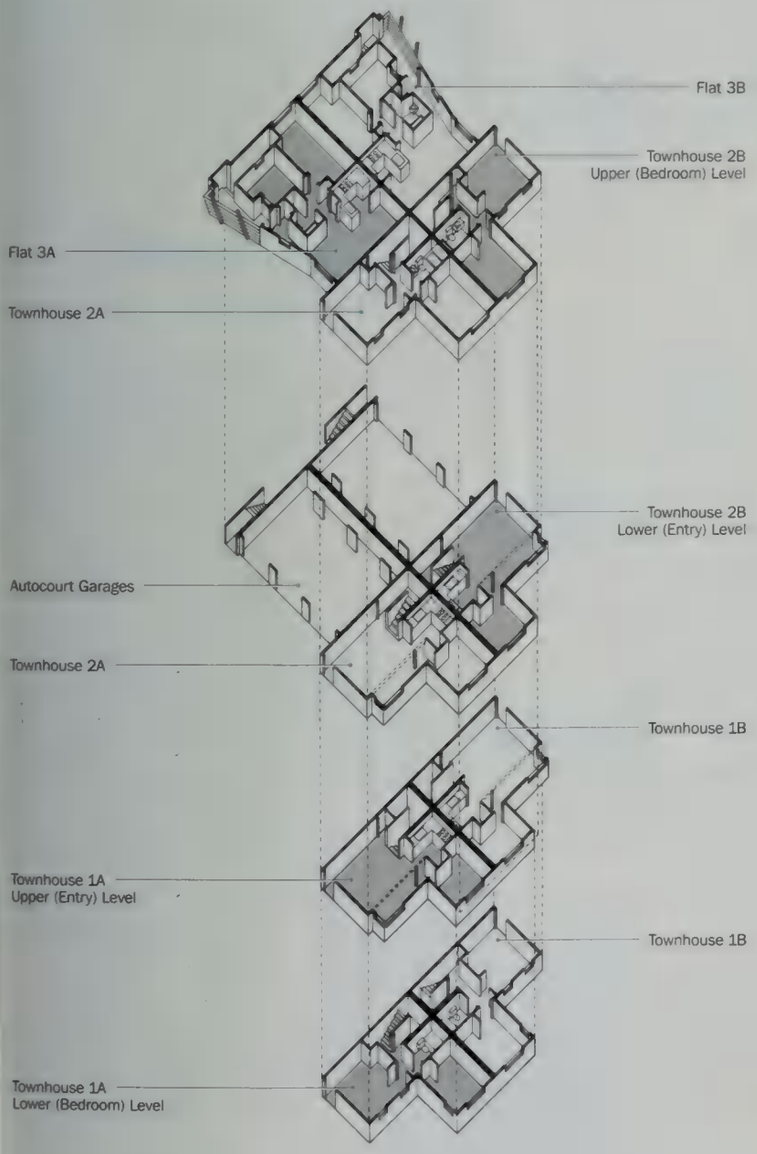


1. *Autocourt*
2. *Balcony*
3. *Section at garages*
4. *Crawl space*



TYPICAL SECTION THROUGH STACKED UNITS





PLAN - TYPICAL STACKED UNITS

According to architect Robert Herman, FAIA, "One thing that's good about NIMBY-ism is that it gives architects a chance to get out there and expose the community to what good architecture is all about. We went into our library and picked out slides of housing and marketplaces coexisting around the world. The project became an excuse to promote design excellence."

The turning point for Market Heights came after a city election removed officials who were opposed to the project, and suddenly protesters disappeared from the hearings. "It turned out that there weren't so many people who were opposed to the project after all," says Stoller.

The architects and developers also made concessions. For example, a proposal to build housing over the market's parking lot was dropped, the general conditions of the construction contract were very specific about not allowing any disruptions of the market to occur during construction, and special leases were drawn up. People who rent in Market Heights agree to hold the market "harmless" for predawn market traffic and noise.

Stoller himself had a personal stake in keeping up the neighborhood. "I've lived seven blocks away from the project since 1981. There's no way I want to see the neighborhood going downhill." ■

Manufacturers' Sources
Siding: *Weyerhauser*
Roofing: *Ditiben USA*
Pedestrian roof decking: *Vulkem*
Shingles: *Pabco*
Windows and sliding glass doors: *Milgard*
Steel-clad doors: *Therma-tru*
Wood doors: *Doorcraft by Jeld-wen*
Garage doors: *Stanley*
Hardware: *Stanley, Schlage*
Paints and stains: *Dunn Edwards*
Plastic laminate: *Wilsonart*
Vinyl tile: *Tarkett*
Carpet: *Shaw Industries*
Lighting: *Progress, Wellmade*
Plumbing fixtures: *Universal Rundel, Mansfield Kilgore Norris*



At the street level (left and opposite top), the units are designed to be low-scale and to fit into the neighborhood. Per federal and state regulations, some units are designed for the handicapped (above).

2 Auburn Court Cambridge, Massachusetts

ALTHOUGH THE APPROVALS AND FINANCING OF AUBURN COURT WERE ARDUOUS, THE RESULT IS A REWARDING ADDITION TO THE CITY.

by Charles Linn, AIA

Project: *Auburn Court Cambridge, Massachusetts*
Owner: *Homeowner's Rehab, Inc.*
Architect: *Goody, Clancy & Associates—John Clancy, FAIA (principal-in-charge); Rob Chandler, AIA, (project architect); Paul Pressman (project manager); Maya Yared (architect); Martin Deluga (construction administrator)*
Consultants: *Lim Consultants structural); C.A. Crowley Engineering (mechanical/electrical); Dewan Associates (landscape); Falk Associates (specifications)*
General Contractor: *Jackson Construction*

Project Statistics
Total development costs: $12.8 million
Construction cost (Phase I): $9.1 million
Average cost per unit: $101 per sq ft
Density: 1.92 acres at 40 dwelling units per acre (Phase I); 2.9 acres at 50 dwelling units per acre (Phase III)

Manufacturers' Sources
EIFS cladding:
Elastomeric roofing:
Skylights:
Door closers:
Exit hardware:
Exterior stain: *Benjamin Moore*
Quarry tile: *American Olean*
Resilient flooring:
Carpeting: *Mohawk*
Lighting: *Seagull, Prescolite*
Kitchen sinks: *Elkay*

Auburn Court takes on the scale, rhythm, and color of its neighborhood. The steel-framed buildings are arranged around a series of courtyards and are sheathed in wood siding of various widths with deep fascia and wide wood trim. Most units give residents either a terrace, a porch, or a balcony.

Phase I of the project consists of 77 units, and 78 more will be built under Phase II. The apartments are built to exceed energy codes, with extra insulation in the floors, walls, and roof, and are built with thermally broken windows.

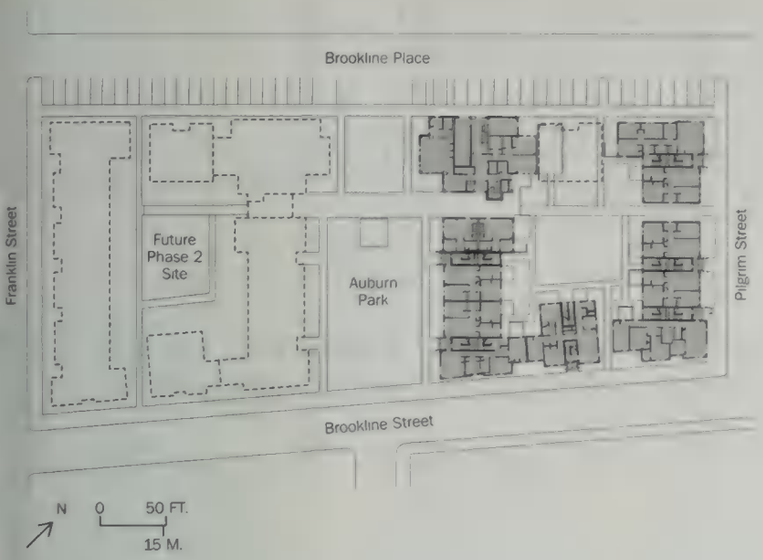
Although designing Auburn Court was probably not the easiest part of the project, it might seem so compared to getting the project approved and funded. The site was originally part of a 27-acre industrial campus purchased by the Massachusetts Institute of Technology (MIT) in 1970. Although MIT had planned to use the site for a mixed-use development, the community "encouraged" the university to include housing there.

After 15 years of community [illegible] ment, the city finally created a special zoning district for the site, [illegible] time called University Park, [illegible] required that any develop[illegible] include a total of 400 units of [illegible], one-third or more to be [illegible] to low-income housing. [illegible]-acre Auburn Court [illegible] to Forest City Dev[illegible] ment, who in turn subleased it to Homeowners Rehab, Inc. (HRI) at below-market rates. This break was critical in allowing HRI to finance the rest of the project. HRI raised seed money to cover predevelopment costs from six different lenders and seven charitable organizations, and was assisted with a grant by the city of Cambridge for preparing the site's infrastructure; the local telephone, cable television, and electric utilities also provided contributions. HRI raised "gap money"—the loans required to bridge the gap between the total development costs and conventional equity financing—from three sources, and finally received permanent financing from two state agencies. The process took over 20 years. "It's complicated enough to scare a lot of developers off," says architect John Clancy, FAIA. ■



A variety of building types, including a hipped-roof structure (right), and the use of appropriate colors and materials, give Auburn Court the appearance of an older, well-established Cambridge neighborhood.







TYPICAL 2 & 3 BEDROOM FLATS



TYPICAL ELEVATOR BUILDING PLAN

A. *One-bedroom unit*
B. *Two-bedroom unit*
C. *Three-bedroom unit*

1. *Bedroom*
2. *Bathroom*
3. *Kitchen*
4. *Living room*



3 Northside Terrace Brooklyn, New York

WHEN AN INDUSTRIAL PROJECT WAS ABANDONED, A VOID WAS LEFT IN THIS NEIGHBORHOOD FOR 20 YEARS. NEW ROWHOUSES HAVE FINALLY FILLED IT.

by Charles Linn, AIA

Project: *Northside Terrace Condominium*
Brooklyn, New York
Owner: *Northside Housing Corp., Developer, an affiliate of the Hudson Companies*
Sponsoring agencies: *New York City Housing Partnership; New York City Department of Housing Preservation and Development*
Community sponsor: *The People's Firehouse, Inc.*
Architect: *James McCullar & Associates—James McCullar, AIA, principal-in-charge; Kenneth Bamburak, project architect; Mihaela Alessiu, Thomas Dean, team members*
Consultants: *Abraham Joselow (mechanical/electrical); Pulaski & Sirota (structural)*
General Contractor: *Monadnock Construction*

Project Statistics
Total development cost: $7.02 million
Total construction cost: $5.01 million
Number of units: 57 in 19 three-story, three-unit buildings
Total gross sq ft: 55,171 sq ft
Dwelling units per acre: 75

Manufacturers' Sources
Face brick: *Yankee Hill Brick Co.*
Wood floor joists: *Trus Joist MacMillan*
Roof membrane: *U.S. Intec*
Aluminum siding: *Alcan*
Infiltration barrier: *Dupont Tyvek*
Lighting: *Hadco, Genlyte, Timely*
Plumbing fixtures: *Crane, Kohler,*

Northside Terrace's site is an odd, almost triangular slice of land in the Williamsburg section of Brooklyn that was, until 1973, occupied by rowhouses. That year, against the wishes of residents, the land was acquired by the city and cleared for an industrial expansion. This never occurred, and for years the land was a vacant pocket of crime.

The New York City Housing Partnership chose an active community organization, The People's Firehouse (so called because of their success in saving a neighborhood firehouse from demolition), as their development partner for the site. The People's Firehouse, not forgetting that residents had left their homes unwillingly over two decades before, advocated that replacement housing be affordable for first-time homebuyers, priced at a level that would allow some of those who had been displaced to return if they wanted.

A site study showed that zoning variances would be required for construction. After these variances were obtained—along with financing—design and construction were completed. Other projects previously put together by the Housing Partnership included units that could be rented [illegible] to help offset the cost of [illegible]. In this case [illegible] approach was used, [illegible] ts were put up [illegible]



Brick-clad rowhouses, designed to be affordable for first-time homebuyers, recall the traditional scale and materials of this Williamsburg, Brooklyn, neighborhood.

The traditionally scaled rowhouses, designed by architect James McCullar, AIA, are compact and spare, in keeping with the building program's affordability requirements, although front and side elevations have been faced with brick. The middle and upper units are entered from stoops, recalling one of the major elements of traditional rowhouse architecture. Ground-floor units have rear terraces, are entered at grade, and are wheelchair-accessible.

McCullar, who has been involved in other housing projects, reveals that there were some surprises in store for him when the units went on the market. "I thought the ground-floor units would sell first, because they have terraces. Apparently people feel more vulnerable to break-in on the ground floor. Much to my surprise it was the units on the third-floor corners that sold first," he continues, "because they were bigger, had more windows and better views. The rest of the third floor sold and the second floor next, starting with the corners again—a preference for views and security versus a backyard. It's something to think about." ■





1. *Living/dining room*
2. *Kitchen*
3. *Bathroom*
4. *Bedroom*
5. *Common mechanical space*





4 Young Apartments Los Angeles

ADAPTIVE REUSE OF A HISTORIC LOS ANGELES APARTMENT BUILDING PROVIDES AFFORDABLE HOUSING FOR SOUTH PARK AREA RESIDENTS.

by Charles Linn, AIA

Project: *The Young Apartments Los Angeles*
Owner: *Los Angeles Community Design Center*
Architect: *Cavædium—Kathleen FitzGerald, principal-in-charge; James Bonar, FAIA, Ken Kurose, AIA, Hue Tong, Christian Sereduke, Sam Waits, project team*
Consultants: *David Taubman & Associates (structural); M.B. & A. (mechanical); G & W Consulting Engineers (electrical); Melendrez Associates (landscape); Patrick Quigley Associates (lighting); Martin Eli Weil (restoration)*
General Contractor: *Clark-Porche Construction Co.*

Project Statistics
Cost: $4.2 million including building and site costs, $80 per sq ft average
Gross sq ft: 52,200 sq ft
Number of dwelling units: 66 one-bedroom units, 400 to 700 sq ft each

Manufacturers' Sources
Mineral-surfaced roofing: *Manville*
Custom wood doors, windows, hardware: *Trimco*
Plastic laminate: *Nevamar*
Ceramic floor tile: *Dal Tile*
Carpet: *Shaw Commercial, Bentley Mills*
Lighting: *Brass Light Gallery, Shaper Lighting, Hubbell Lighting*
Elevator: *Otis Elevator*
Plumbing fixtures: *American Standard, Mansfield Kilgore Norris*

Architect Robert Brown Young designed this Los Angeles apartment building for oilman William F. Young. When construction was completed in 1911, the Classical Revival–style building was considered one of the finest apartment buildings in Los Angeles. The apartments were designed for single, working people, and William Young thoughtfully provided tenants with an Arts and Crafts–style lobby and, in the basement, a billiard room and a ballroom.

With the passing of the decades, the building deteriorated so badly residents nicknamed it "Dracula's Castle"; eventually, living conditions became so awful that the owner was cited by the Los Angeles Slum Landlord Task Force. Beginning in 1990, the building was vacant and left to squatters, damaged by vandalism, and marked by graffiti. As in most recent affordable housing projects, the developer's creation of a funding package was one of the project's most troublesome pieces. In the case of the Young Apartments, this difficulty was exacerbated by the fact that construction was not new. The city's Community Redevelopment Agency had approached a not-for-profit developer, the Los Angeles Community Design Center (LA/CDC), to develop funding for the building so that it could be rehabilitated for low-income housing. But even though the LA/CDC had a good reputation for their affordable housing projects, the Young Apartments had such a bad reputation that getting funding was not easy. The LA/CDC worked for three years to package funding from tax credit investors, state and community development funds, conventional financing, and local redevelopment loans.

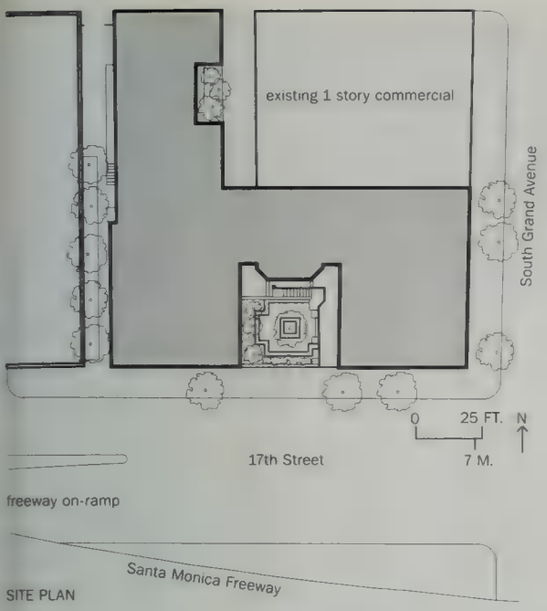
Putting it back together

After funding and feasibility, one of the architectural firm Cavædium's first considerations was the building's landmark status. This was not a problem, according to Kathleen FitzGerald, project architect: "Because the building is a City of Los Angeles Historic Cultural Landmark, it had to be reviewed by the city's Cultural Affairs Department during the schematic phase and design development. But the city was always very supportive."

The exterior of the building offered a number of challenges. Metal brackets were re-created from the originals, terra cotta was repaired, the building was cleaned of graffiti, and concrete was painted to match its original color. The wood windows were deemed unsalvageable and replaced with new wood windows whose sashes were fitted with laminated glass for sound control—the building is within a stone's throw of an on-ramp for the Santa Monica Freeway.

This prominent location gave the architects an opportunity to do something that would signal the return of this landmark and the neighborhood: they lit the facade, revealing its elaborate cornice and terra-cotta lions' heads.





SITE PLAN

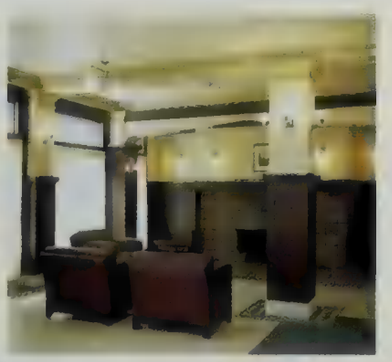


FIRST FLOOR

1. *Lobby*
2. *Ingelnook*
3. *Elevator*
4. *Mailboxes*
5. *Living room*
6. *Kitchen*
7. *Bathroom*
8. *Bedroom*
9. *Office*
10. *Studio*

Formerly known by residents as "Dracula's Castle," the Young Apartments have returned to life as affordable housing. The architects illuminated the building's facade to make it stand out next to the Santa Monica Freeway. The building's restored Arts and Crafts lobby (far right, top) has a permanent exhibition of the building's history. Apartments (far right, bottom) feature built-in buffets that replicate the originals.







The small outdoor space between the building wings was redesigned as a courtyard. Heavy shrubs protected by a wrought-iron fence screen the area from the noise of the freeway; inside, shade trees, benches, flowers, and potted herbs provide a relaxing refuge for residents.

Layouts of the apartments weren't changed except to accommodate mechanical equipment. The living rooms in most of the existing 16 units were damaged, but most had not been severely altered. Missing woodwork was replaced, plaster was repaired, and the units' built-in buffets were rebuilt. Bathrooms and kitchens were beyond repair, so these areas were rebuilt in a manner that would be sympathetic to the original interiors. Some new mechanical equipment was installed in a newly enclosed air shaft; the balance of the space was added to the kitchens and bathrooms. Piping for sprinklers was installed in either kitchens or bathrooms.

Heating and air conditioning is provided by vertically stacked heat pumps that were installed in closets or furred out where necessary. The Arts and Crafts lobby was marred by missing Honduras mahogany panels and trim. The architects replicated the design from fragments of the original materials that remained and from architect Robert Brown Young's working drawings. The restoration here also included work on the mosaic tile floor and restoration of the original fireplace.

Scrimping is not saving

FitzGerald cautions architects not to scrimp on materials, finishes, and hardware when designing for affordable housing. "We specified a higher grade of hardware than is usually found on market-rate housing," says FitzGerald. "We used painted wood panel doors on the buffet instead of laminate not only because they go better with the spirit of the times, but because they are more durable than the alternatives. We also searched for a loop-pile carpet instead of a cut-pile, and found one that would resist being stained by bleach and hide dirt.

"Nonprofits who manage their own properties have a greater incentive to push for high-quality materials initially. They can't just sell out in five years like private owners can," FitzGerald concludes. ■

5 Plaza Maria San Jose, California

THE TRELLIS-CAPPED TOWER OF AN AFFORDABLE HOUSING COMPLEX SIGNALS CHANGE NEAR DOWNTOWN SAN JOSE.

by Charles Linn, AIA

Project: *Plaza Maria Family Affordable Apartments San Jose, California*
Owner: *Mercy Charities Housing California*
Architect: *David Baker Associates Architects—David Baker, FAIA, principal designer; Peter MacKenzie, AIA, project architect; Jeff Burris, project designer*
Consultants: *Steven Tipping & Associates (structural); MHC Engineers (mechanical); Pete O. Lapid (electrical); Sandis Humber Jones (civil); Terratech (geotechnical); Cottong Taniguchi (landscape); Edward L. Pack Associates (acoustical); BEC (energy)*
General Contractor: *L & D Construction*

Project Statistics
Total project cost: $4.9 million
Cost per dwelling unit: $92,453
Number of units: 53
Density: 38 dwelling units per acre
Total gross sq ft: 74,045
Cost per sq ft: $66/sq ft

Manufacturers' Sources
Vinyl windows: *Mercer*
Metal doors: *Ceco; Viking*
Door hardware: *Schlage; LCN*
Overhead doors: *Kinnear*
Paints and stains: *Fuller O'Brien, Benjamin Moore*
Plastic laminate: *Wilsonart*
Vinyl composition tile: *Azrock*
Vinyl sheet flooring: *Mannington*
Lighting: *Seagull, Shaper, Progress*

Plaza Maria, a 53-unit housing complex, sits on the edge of the downtown San Jose redevelopment zone. Developed by Mercy Charities Housing, a nonprofit housing development corporation, it was funded by low-income-housing tax credits. A striking part of the development of this complex is that NIMBY-ism did not play the role that it has in many projects. It was not people in the project's backyard who opposed it, but policymakers in San Jose's city government. They felt it was preferable to try to attract high-income residents to the retail-and-entertainment core of the city, rather than people who would be eligible for affordable housing.

Over time Mercy Charities prevailed. They showed that rental-market rates in the area were already lower than 60 percent of median income, which is the most that low-income tenants can be charged, and therefore market-rate housing was not feasible. Even though the city backed down, the developer and architect David Baker, FAIA, knew a special building was called for.

Baker worked to make the complex blend in with the working-class neighborhood's Craftsman-style houses. The [illegible] earth tones found elsewhere in the city were used for the [illegible] trellises were built [illegible], and the massing of the [illegible] was broken up with setbacks formed by cutouts in the floor plans.

There are four floor-plan types, designed so they can be reversed or combined in a number of different ways, to fill the site as efficiently as possible while gaining the desired dwelling-unit density and creating the exterior setbacks.

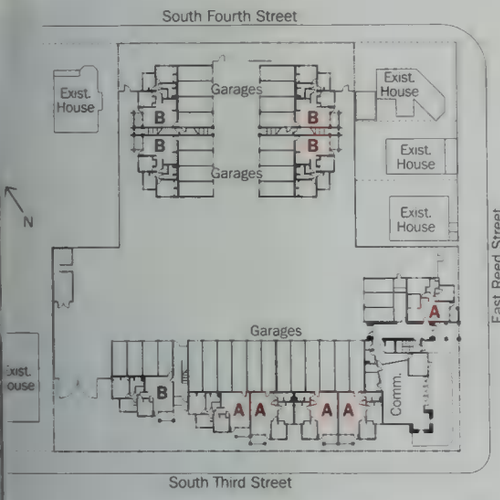






The trellis-topped corner tower (left) has become an established icon for the entire neighborhood. The interior of a resident's apartment (below) is light and airy.





Unlike other affordable housing projects, lots of parking is included here (site plan, left). The plans of the different unit types (below) are interlocking and can be rearranged a number of ways, to make the most of the site and to give the building form visual interest.

At one corner of the complex, a tower topped by a trellis rises a full story above the rest of the apartments. Baker comments that, although it has no real function except as a marker for the building, the tower has become an established icon for the entire neighborhood and is even used as a logo on a community newsletter.

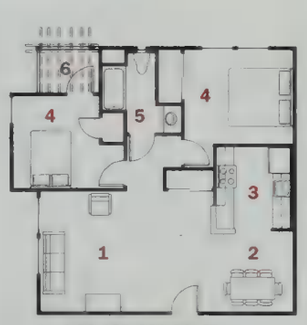
The complex itself is safely tucked behind masonry walls and wrought-iron gates. The apartment buildings are arranged around a large courtyard with parking areas. Garages are accessible from the courtyard, although some can be reached from their attached apartments. A community room, laundry, and play lot are adjacent to each other in one corner of the property.

Plaza Maria has been endowed with much that is lacking in market-rate housing. And perhaps sometimes it is an architect's need to respond to political pressure that results in such a building—one that is a gift rather than a burden to a neighborhood. ■











1. *Living room*
2. *Dining room*
3. *Kitchen*
4. *Bedroom*
5. *Bathroom*
6. *Terrace*

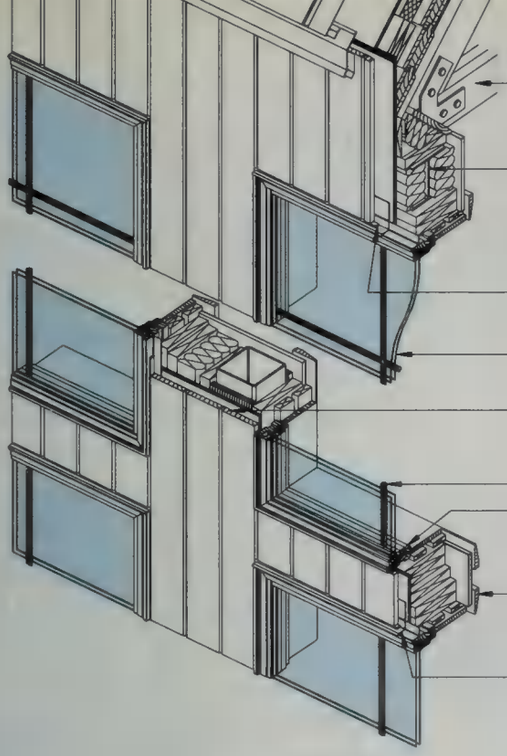
A. *Two-bedroom unit*
B. *Three-bedroom unit*
C. *Two-bedroom unit*
D. *Four-bedroom unit*





Project Outline Design a waterfront community center built to withstand salt air, high winds and seasonal temperature variations. It must meet the approval of an unusually diverse constituency, including the Army Corps of Engineers, Maryland State Department of Natural Resources, Town of Ocean City and Heron Harbour Isle Recreation Association.

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Brad A. Hastings, AIA, Project Architect



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Project Architect: Brad A. Hastings, AIA

Project Principal: W. Ronald Morgan, AIA

Project Team: Jack E. Mumford III, Associate AIA

Contractors: J. Roland Dashiell & Sons, Inc., Salisbury, Maryland

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CIRCLE 34 ON INQUIRY CARD

AIA Documents: The Rules Are Changing

NEW VERSIONS OF THE GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION AND THE OWNER-ARCHITECT AGREEMENT ADDRESS DISPUTES AND SERVICES.

by Dale R. Ellickson, FAIA, and Mark H. McCallum

It is hard to exaggerate the importance of the AIA documents to the American construction industry. Speaking to an audience in the UK recently, Justin Sweet, Professor of Law Emeritus at the University of California at Berkeley's Boalt Hall, described them as 'the principal reason that American construction law is generally uniform in nature." When other documents are used, they typically draw on AIA provisions—and they cannot avoid relying on case law built up in the interpretation of AIA language.

But AIA documents don't operate in a vacuum. They have been a constant within the industry partly because their drafters pay attention to changes within the industry. "Architects have to redefine their profession," says Ed Tsoi, FAIA, of Tsoi/Kobus & Associates, a member of the Documents Review Task Force of AIA's Practice and Prosperity Initiative. 'This is true for a number of reasons, not the least of which is the fact that our clients are redefining themselves."

Since early in this century, AIA's flagship document has been the General Conditions of the Contract for Construction, now designated A201. Other AIA general conditions take their direction from A201, which describes the architect's role in administration of the construction contract. More than any other AIA document, A201 defines the rules for the industry. The Owner-Architect Agreement, B141, in turn defines the role of the profession within the industry.

Semifinal drafts of A201 and B141 were distributed for comment at the AIA convention in May. Input is still being received as this article goes to press. The Documents Committee will review these comments and finalize the drafts for publication in October. Publication of these documents will mark the completion of a 10-year revision cycle. The AIA began taking comments on A201, B141, and related documents shortly after the 1987 editions were published. The Documents Committee has received input from architects through roundtables held by AIA component chapters, which have also contributed by hosting owners' roundtables. Input has been received from the Associated General Contractors, the American Subcontractors Association, the Associated Specialty Contractors, the American Bar Association, and the American College of Construction Lawyers. The revision process also coincided with AIA's Practice and Prosperity Initiative, which provided support for a fundamental reassessment of the architect's role. New editions of the other documents in the A201 family will appear as well.

Continuing Education *This month's installment of the ARCHITECTURAL RECORD/AIA Continuing Education Series looks at the proposed 1997 revisions to the AIA contract documents. We thank Joseph Dundin and Douglas E. Gordon for their education contributions. After reading this article, complete the questions (page 162) and check your answers (page 164). AIA members may fill out the self-report form in this issue (page 164) and send it in for two AIA Learning Units. —Mark Scher, AIA Director Professional Education Products and Services*

Learning Objectives *After reading this article, you will be able to:*

1. *Summarize the intended changes in the Owner-Architect Agreement involving communication, professionalism, intellectual property, and dispute resolution.*
2. *Cite the consequences for owners and contractors when an owner terminates a contract.*
3. *Identify three elements of the new AIA Owner-Architect Agreement that apply in a given design situation.*

A201: Incremental changes

In revising A201, the AIA Documents Committee has squarely addressed the most persistent problem in the construction process: disputes. Three major changes in the document are the contractual equivalent of tort reform.

- Mediation is now required prior to arbitration, in order to defuse disputes before they escalate. The mediation and arbitration provisions are separate, so that either can be deleted without affecting the other.
- A mutual waiver of consequential damages keeps a lid on the amount involved in any dispute by excluding indirect or incidental damages. Both owner's and contractor's claims are limited to amounts directly arising from the other's breach.
- Termination for the owner's convenience is permitted, with appropriate payment to the contractor. "Opt-out" provisions of this kind have been used by federal agencies, and permit the owner to withdraw from a contractual relationship that proves unworkable.

A hot issue between architects and contractors has been the allocation of responsibility for incidental design. This usually involves fabricated or manufactured building components such as curtain walls and elevators. A new provision in A201 sets out procedures and gives a detailed allocation of responsibility. It is not a radical departure from the 1987 wording, but will eliminate some areas of doubt and disagreement. (See "The Associated General Contractors Comment on General Conditions," page 124.)

The new A201 contains detailed requirements for contractor review of the contract documents and field conditions. The expectation is that the contractor will conduct such review in order to expedite construction, not to discover discrepancies. However, any discrepancies that come to light must be reported promptly.

Other, minor changes occur throughout A201. "We took a fresh look at the whole document," says Leo G. Shea, FAIA, of Kughn

Dale R. Ellickson is the AIA Contract Documents Program counsel. Mark H. McCallum is the AIA Contract Documents Program associate counsel.

Enterprises, chairman of the Documents Committee task group responsible for A201. "You'll see adjustments to many facets of the relationship. These include the contractor's right to rely on owner-furnished information, broader hazardous-material provisions, and the owner's right to assign the contract to the lender providing construction financing. Questions that existed under the 1987 edition, such as whether the contractor was entitled to payment of amounts not in dispute under construction-change directives, have been laid to rest through language in the 1997 edition. The idea throughout has been to bring the document into line with current practices and, where we have a choice, to foster the best practices."

B141: New departures

If the changes in A201 are incremental, those in B141 are revolutionary. Responding in large part to the Practice and Prosperity Initiative—which recognizes that architectural services extend well beyond building design and construction, that they are based on long-term relationships, and that they place architects in facilitator/integrator roles—the AIA Documents Committee undertook a complete reevaluation of the document and its role in the practice of architecture. The committee was able to identify 11 conceptual principles that the new B141 would need to satisfy:

- Allow the architect to provide an expanded range of services over the life of the project.
- Enhance the link between fee negotiation and the services to be provided by making clear to the owner the value of services being negotiated, and how those services can be compensated.
- Offer clear descriptions of services.
- Evidence a tone and character that are positive, comprehensive, inclusive, proactive, and educational.
- Demonstrate the value-added nature of the architect's services.
- Clarify the owner's role, responsibilities, and obligations.
- Provide for conflict avoidance and resolution.
- Permit flexible selection of compensation and project-delivery methods.
- Describe known project assumptions in detail, including scope, budget, site, and schedule.
- Provide a means of managing costs through the life of the project.
- Provide some familiarity to users of AIA documents and preserve links to related documents such as A201.

"We sought and obtained input from owners, architects, attorneys, and insurers," says Bob South, AIA, of the Gorder South Group, chairman of the Documents Committee task group that drafted B141. "We found there was support among all these groups for a more proactive role for the architect." One example is the proposal that the architect have more responsibility for keeping cost within the owner's budget. If costs became too high, redesign would be the architect's responsibility.

The general call was also for a document for architects willing to take on more duties, a document with a can-do attitude. The resulting draft, currently in its final stages of revision, differs radically from the 1987 edition, primarily in three ways:

- It is in the form of a three-part document "kit" rather than a single, free-standing document.
- It requires an active dialogue between architect and client that will establish a better understanding up front of what the architect will do.
- It enables the architect to offer the client an expandable range of services.

In many ways, the new B141 takes a step back to a time when architects offered the comprehensive project-administration services owners often seek from others today.

"Architects have been disconnected from the construction site," says Raj Barr-Kumar, FAIA, RIBA, of Barr-Kumar Architects Engineers, president of the AIA. "The more aggressive, assertive, entrepreneurial architects are already producing these kinds of relationships."

THE ASSOCIATED GENERAL CONTRACTORS COMMENT ON GENERAL CONDITIONS

From many contractors' perspectives, the design-delegation clause in the new edition of A201 will be a radical departure from the clause in the 1987 edition. Given that the 1997 edition of A201 would have more explicit language than that of the 1987 edition's rather vague and frequently overlooked clause, the [illegible] General Contractors' [illegible] to [illegible] provide professional services. While it does not mandate the delegation of design, the provision does permit it. It must be recognized by all to be a shifting of more risk to the contractor, which can have serious professional licensing, insurance, and public-policy implications.

Contractors will have to carefully review the contract documents to determine their design responsibilities and to make sure the project design professionals have met their [illegible]ations under the provision. It [illegible] be prudent for them to review [illegible] licensing laws and regula- [illegible] design professionals [illegible]duction in which they do [illegible]ork. The [illegible]ation of design responsibilities is currently being challenged in at least one state.

Insurance will become an even more important part of the contractor's risk-allocation protection. Since liability for the delegated design will "pass through" the general contractor, a condition of any subcontract where design work is required should be that the design professional providing the delegated design have appropriate professional liability insurance coverage. Contractors will have to learn the particular language of errors and omissions coverage. There is a growing new market for contractors' contingent liability coverage as well as stand-alone design liability coverage, but these policies are virtually untested and are being offered in an unusually soft insurance market.

There are many other significant changes from the 1987 edition: a mutual waiver of consequential damages, an expanded definition of hazardous materials, a termination-for-convenience clause, a requirement that substitutions be authorized by change order, and a provision requiring the owner to disclose any financing changes. While the AGC strongly supports the inclusion of mediation in dispute-resolution procedures (a provision in AGC standard forms for the last six years), it is unfortunate that the AIA has retained the prohibition against consolidation or joinder of arbitrations. *Cheryl Terio*

Cheryl Terio is Counsel for construction law and contracts of the Associated General Contractors of America.

New three-part format

A modular format in three distinct sections was chosen so that the architect and the owner can more easily tailor services (and services packages) to specific project needs. The three parts are:

- An Agreement form containing blanks for preliminary project information, such as the proposed use, anticipated time constraints, and the names and addresses of the owner's designated representative and consultants, along with terms and conditions and payment provisions.
- A Scope of Services form describing the services to be provided by the architect.(In the form to be released in October, there is only one Scope of Services, which is very similar to that in the 1987 edition, comprising services for the design and administration of the project. This will, over time, be joined by other, alternative Scopes of Service as need is identified.)
- Supplemental Attachment forms that may be used to modify or add to the Scope of Services form from part two. For instance, the architect and owner may negotiate for the architect to provide extended project representation services beyond the level offered in part two.

"The multipart format offers greater flexibility through the life of the project," says Alan Sclater, AIA, of Sclater Kimball Architects, who coordinated the drafting of B141. "There's more than one way to structure your services, and that often becomes evident in the course of a single project."

The Agreement Form

The Agreement Form is the key coordinating element of the three parts. Its first article, entitled Preliminary Project Information, is critically important. This set of fill-in blanks calls for quite specific information about the project. The object here is to stimulate dialogue between client and architect about the size and location of the project, its proposed use, the owner's budget, the proposed method of contracting, the parties' representatives and consultants, and so on. "There is no doubt that a majority of construction claims against architects have their genesis in faulty communication," says Paul Genecki of Victor O. Schinnerer & Co. This new article is intended to correct that problem by getting all the important assumptions and expectations out on the table for discussion.

The professional character of the owner-architect relationship is underscored by new provisions requiring disclosure of conflicts of interest and maintenance of the confidentiality of client information. The latter is intended to obviate the need for custom-drafted provisions where the owner will be sharing proprietary information with the architect. A source of concern in recent years has been the preparation and handling of the architect's drawings and specifications in electronic format (see "Copyright Law in the Age of the Web," RECORD, June 1997, pages 169–70). The new Agreement extends the same protection to such materials as to their paper equivalents. It also allows for their transfer between the parties once format, ownership, and use have been agreed to.

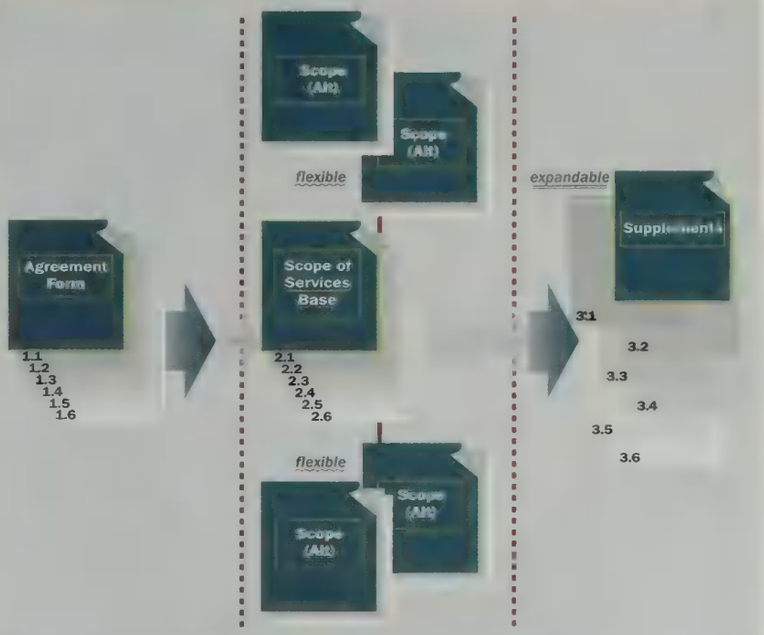
Arbitration is mandatory under the new B141, just as in previous editions. Mediation has been added, as in A201. The architect and owner agree to split the cost of mediation equally. And as in A201, the B141 Agreement contains a waiver of consequential damages, that is, damages alleged to flow indirectly from a breach of the contract. (Needless to say, the only limit on such damages may be an aggrieved party's imagination.) B141 also permits termination for the owner's convenience, with appropriate compensation and expenses to the architect.

The Scope of Services

When it is published in October, the new B141 will contain a Scope of Services that approximates the services set out in the 1987 edition of B141. The AIA will be developing other scopes of services for other types of projects; those under consideration include scopes of services for interiors work, design services without contract administration services, and contract administration services without design services. Users who wish to develop their own Scopes of Services will be able to do so and still use the standard Agreement form.

A significant advantage of the new Scope of Services is its detailed description of the services to be provided by the architect. By establishing a more thorough understanding at the outset of what the architect is going to do, the new form removes some of the basis for disagreement as services proceed. Space is also provided for the parties to

THE [illegible] ORGANIZATION OF B141 [illegible]



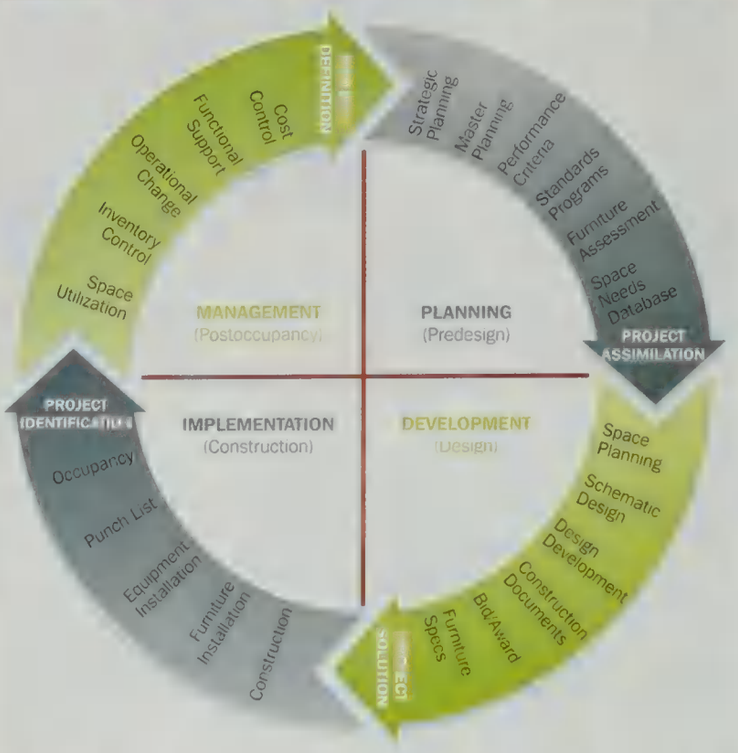
Step One	Step Two	Step Three
Establish terms and basic conditions in the **Agreement Form**	Choose from alternative **Scope(s) of Services** (or develop your own)	Expand scope, if needed, beyond baseline by choosing **Supplements**

A MODULAR FRAMEWORK The most revolutionary element of the new Owner-Architect Agreement is its organization into multiple standard parts assembled in a three-step process. The concept, derived from discussions among the AIA Documents Committee, the Practice and Prosperity Task Force, and Institute leadership, was to make the document applicable to the specifics of any project. Full-service firms, niche specialists, even architects providing pure consultation services not related to a specific building can create a solidly documented agreement from the B141 form.

STEP 1 establishes Basic Terms and Conditions It also includes a discussion outline for owner and architect to use to come to agreement on mutual responsibilities and expectations. Step 1 does not specify services, and can be used alone (with the architect's or client's own description of scope of services) or in conjunction with either Step 2 solely or with Step 2 and Step 3 together.

STEP 2 describes Scope of Services Currently, this step is comparable to the 1987 basic Scope of Services. Over time, the AIA Documents Committee will be creating numerous approaches as the committee identifies those approaches.

STEP 3 will supplement the Scope of Services A set of attachments will allow any one or more of the baseline services detailed in Step 2 to be enlarged as negotiated between owner and architect.



The new B141 breaks away from the earlier entrenched thinking of phases of services (i.e., predesign, schematics, design development, contract document, and construction administration). The weakness of grouping architectural services by phases is that it creates a limiting mindset, argues William T. Coleman, AIA, of Sindik Olson Associates, Santa Monica, Calif. Viewing facility life cycle from the client's perspective creates a circle that greatly expands the potential for architect involvement in all a client's facility-related needs.

specify the number of site visits, shop drawing reviews, and inspections for substantial completion.

Phases of services have been eliminated in favor of groupings according to the type of service involved. The groupings are:

- Project Administration Services
- Evaluation and Planning Services
- Design Services
- Construction Procurement Services
- Contract Administration Services
- Facility Operation Services

The distinction between basic, additional, and contingent additional services has been eliminated as well. In place of contingent additional services, circumstances requiring a change in the services of the architect—and entitling the architect to an adjustment in compensation—are described in the Agreement.

Needless requests for information from the contractor have been a problem on many projects. Under the Scope of Services, responding to such requests constitutes a change in service.

A persistent source of client dissatisfaction has been the failure of architects to stand behind their cost estimates. In earlier editions of B141, the parties have had the option of proceeding with a fixed limit. In response to owners' comments, that option is the standard in the new Scope of Services: if the lowest bid exceeds the owner's budget, the architect will redesign as necessary with the budget. A further change under consideration as we go to press is use of the term "general supervision" to describe the architect's relationship to work under construction. Since the early 1960s, the term "observation" has been used. Comment has indicated that "supervision" more accurately describes what architects actually do in the course of contract administration. The term also has value to owners, who want somebody on the project to supervise. The question still being considered by the Documents Committee is, "Why not the architect?"

Victor O. Schinnerer, after reviewing pertinent case law, has agreed that "supervision" is insurable terminology. The proposed move back from "observation" is based on the same arguments as were made in 1960 when William Stanley Parker presciently wrote, as an AIA consultant on contract procedure: "It seems to me the trend of intent in these various amended phrases is to belittle the duties of the Architect in the field. I feel that the long-familiar use of the word 'supervise' is justified, and that if the proposed amended phrases should be adopted...the Architect [should be] reduced to a more or less casual observer of the construction process...and any Client would be justified in deciding to do away with the Architect's supervision and make other arrangements."

The Attachments

A third part—or, more accurately, parts—of the new B141 is contemplated: a set of attachments for use in modifying the Scope of Services. Several attachments corresponding to the groupings of services in the Scope may be published with the new B141 in October. Other attachments may follow, and still others will be developed for use with other scopes of services. As with the Scope of Services, users are free to develop their own attachments.

The intention, however, is to provide enough flexibility within the standard document to accommodate most uses. Customization is an option, as it has always been. The new B141 differs from earlier editions in providing a modular framework for customization and modification. "Architecture is not a one-size-fits-all profession," says Barr-Kumar, "and this is not a one-size-fits-all document. These forms are meant to be tailored—customized to meet the client's needs and the specific project needs. They are meant to be modified. They are a living document." ■

Resources for AIA Documents Information

The dialogue on A201 and B141 among AIA members at the component level came to a close July 1. For more information on those discussions in your area, contact your state or local AIA component.

The final forms of AIA Document A201, General Conditions of the Contract for Construction, and AIA Document B141, Standard Form of Agreement Between Owner and Architect, will be available this October through AIA document providers, including AIA component bookstores and the national fulfillment house 800/365-2724.

The AIA also has initiated a fax-on-demand service for ordering Institute-related information. The following index is for AIA Contract Documents Program mailings. Call 800/AIA-DUES and follow the voice prompts to order copies of these documents.

Document number/Document name

1. *Index*
11. *AIA Contract Documents Price List*
12. *AIA Documents: Use and Reproduction*
13. *Documents Drafting Principles*
14. *Construction Management Article*
15. *Ownership of Documents: Parts 1 and 2*
16. *Revised Design/Build Documents Published*
17. *New Owner-Architect Agreement for Developer Housing Projects Published*
18. *You and Your Architect*

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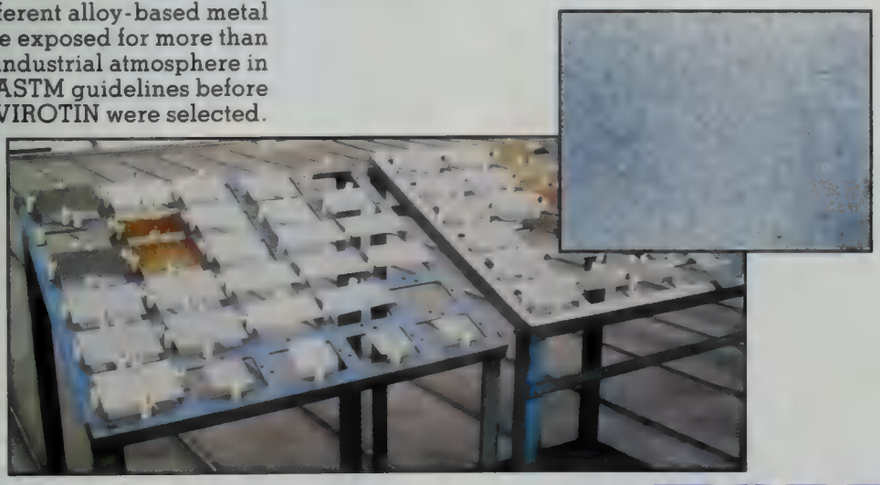
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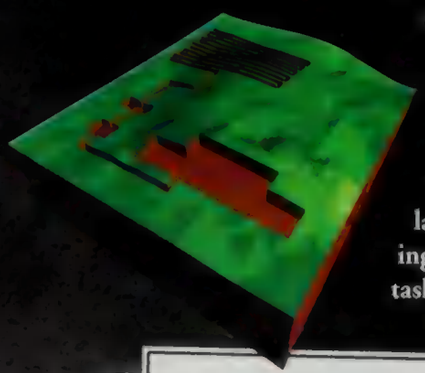
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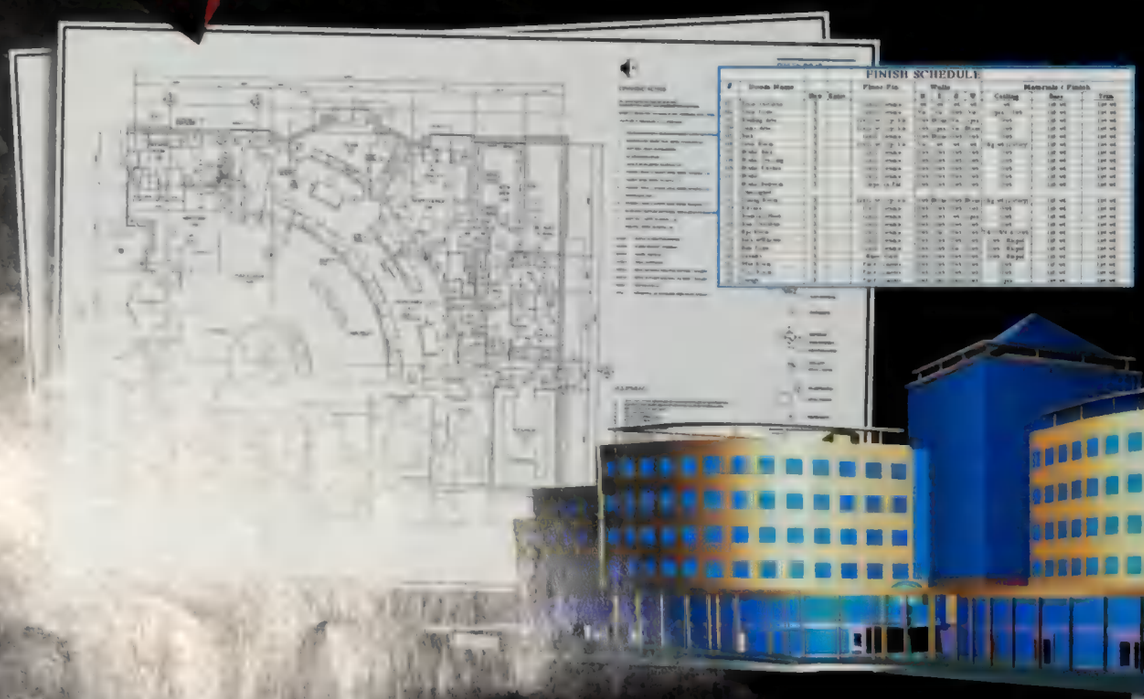
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CIRCLE 36 ON INQUIRY CARD

Getting Your Feet Wet in CAD

WHILE ENTRY-LEVEL APPLICATIONS MAY SEEM AN OBVIOUS CHOICE, THERE ARE NOW MANY PATHS WORTH CONSIDERING FOR THE HERETOFORE COMPUTERPHOBIC.

by B. J. Novitski

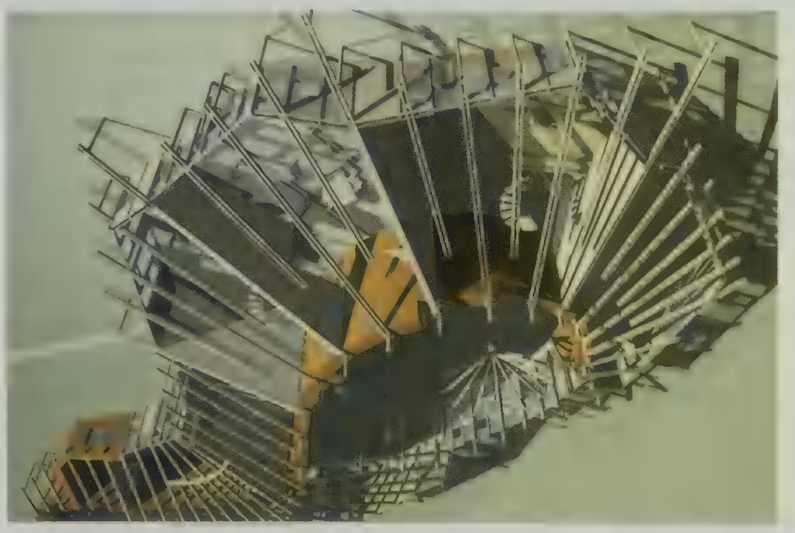
For the thousands of architects who have not yet incorporated computer-aided design into their practices, the pressure to adopt mounts every year. As clients, consultants, subcontractors, and even fabricators come more and more to rely on CAD documents, firms without CAD may find it increasingly difficult to compete. Some firms have shied away from CAD technology, but fortunately the ease of automating is improving at the same time that hardware and software costs are declining. Nonetheless, the number of available choices is still daunting. How do you select a suitable software system that won't break the bank?

For the newcomer, there is no one-size-fits-all solution to the CAD equation, say experts. For firms that have long avoided CAD, one key to making an initial selection is to examine why the firm has resisted the technology. The obstacle may have been technophobia (or techno-skepticism). Perhaps cost has been the barrier. And a few creative souls whose idiosyncratic design styles are in contrast to stereotypically rectilinear computer graphics have been justified in staying away from systems that would force them into straight lines and square boxes. Whichever category you may fit into, the marketplace now offers a variety of options. And whatever your reason for holding out, it is probably better to reassess whether current systems meet past objections now than to wait until you find yourself faced with clients or consultants who won't work with you if you don't have CAD.

You can choose to start modestly and grow gradually, or you can take on the technology aggressively, attempting to get through the transition rapidly. Either way, it's important, experts agree, to match your move with the capabilities of your firm. Even a small, inexperienced firm, says Minneapolis consultant David Jordani, can tackle the more complex systems if enough people in the firm have the right disposition toward technology. "The bottom line," he emphasizes, "is that success always depends on the people." Barry Isakson, of Architectronica, a Los Angeles–based consulting firm, agrees but he cautions his clients about taking too big a bite. Adopting any new system takes time and pulls staff away from the immediate job of getting projects out the door. "If everyone in a small firm dives in over their heads," Isakson warns, "they may find they're losing money because they can't get the drawings out." But entry-level software allows newcomers to get their feet wet gradually.

What was good enough for my father...

Such gradual transitions may be most appropriate for firms that have held out due to inexperience, fear of the unknown, or a healthy wariness of awkward technologies. Many small firms are so adept at producing drawings by hand that computers would slow them down. But even the most resistant CAD holdouts have probably already discovered the productivity gained through word processing, spreadsheets, and other automated office functions. Older practitioners, who didn't have access to computer training in architecture school, are learning from their children or grandchildren how accessible technology can be. These holdouts may be wondering if CAD can become another routine tool for enhancing efficiency.



Though AllPlan is not simple, one analyst says such integrated programs are what even novices need.

For such beginners, Isakson recommends starting with simple drafting software that simulates what architects already do by hand. He works only with Macintosh, and cites PowerCADD, MiniCad, and MacDraft [see "CAD Software Sources," page 132] as low-cost, entry-level systems. "Power is nothing if it's not accessible," he says, "so novices should start with something appropriate to their skills. They can always migrate up later after they come to appreciate the differences between the easy-to-use systems and the more sophisticated ones." These 2D drafting programs work in a simulated paper environment so they are easy to learn by architects who have many years of experience on drawing boards. "You draw lines on a white background," says Isakson, "and when you press Print, you get what you see on the screen." He notes that even though Macintosh software has gained in power over the years, it is still relatively easy to use.

This also is increasingly true for PCs running Microsoft Windows operating systems. Those looking for 2D drafting software on PCs might want to consider Chief Architect, Imagineer Technical, MicroStation PowerDraft, Vdraft, or Visio Technical. The graphic user interface, with mouse-click commands, pull-down menus, and consistent

B. J. Novitski is a freelance writer specializing in architectural technology, practice, and education. She can be reached at bjn@efn.org.

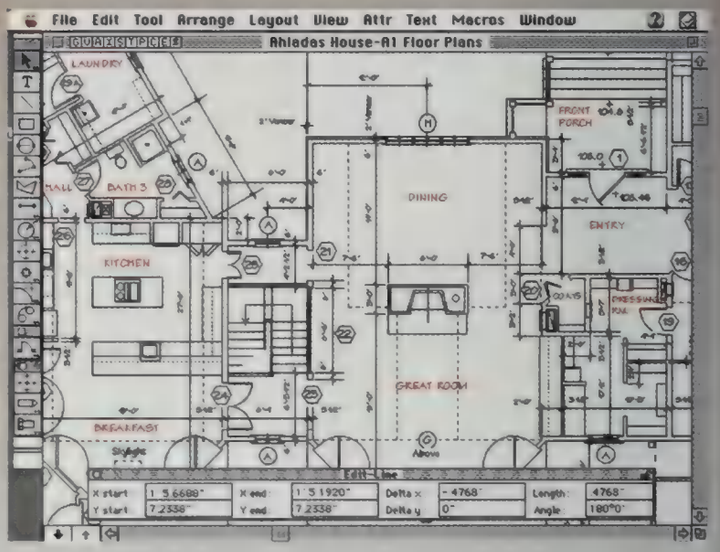
file management, is a radical departure from the older text-based DOS (disk operating system) that many visually oriented architects found difficult to master. Jan Bower, an architectural technical support person at Bentley Systems, served for several years as CAD systems manager for an Atlanta architecture firm. She notes the tremendous improvement in software usability in the past decade. "Terminology is the area of greatest improvement," she says. "Systems used to operate with terminology that made sense to the computer programmers but not to the architects. For example, walls weren't called 'walls' but 'class codes.'"

After a firm has gotten comfortable with a 2D drafting program, it will be better able to understand the benefits (and risks) of taking on 3D modelers or systems that integrate 2D and 3D, suggests Isakson. In the future, some say, most design work will be done on 3D models, which will generate 2D drawings as a byproduct of the process. But for architects whose training predates the widespread popularity of computers and who are comfortable with and efficient in designing by drawing on paper, working mainly in 3D may not be realistic. But for those interested in making the transition, ArchiCAD, available for both Mac and Windows, may be an attractive alternative. This system enables the user to draw in plan but simultaneously create a 3D model capable of generating sections, elevations, perspectives, animations, and quantity takeoffs.

Geoffrey Langdon is a principal of Architectural CADD Consultants in Boston and author of *Architectural CADD: A Resource Guide* (http://www.architecturalcadd.com/book.html). This book offers software recommendations for small firms. Langdon often recommends ArchiCAD and DataCAD to his clients, but he notes that architecture schools have a different perspective on what is suitable for beginners. "Schools," he explains, "see their job as teaching design, not drafting. Form•Z and 3D Studio are big in design schools around the country because teachers want to encourage their students to start with 3D modeling. But what's entry-level for young architecture students is not necessarily easy for older novices to learn."

Simple Drafting Software For many users, Macintosh-based systems are more readily mastered. These 2D drafting programs work in a simulated paper environment so they are easy to learn by architects with many years of experience on drawing boards.

MacDraft | **PowerCADD** | **MiniCad**



When the bottom line is cost

For some small firms, it's not technical difficulty but cost that provides the barrier to adopting technology. This remains true even though computing power that once cost hundreds of thousands of dollars is now available for a few hundred. Small firms are especially wary of any new expense when they are still experimenting. It is for this reason, too, that Isakson recommends the low-end systems mentioned earlier. For a small investment, and with relatively modest hardware, a firm can learn enough about the technology before making a major expenditure. He says: "I tell my clients to do some experimentation and see if the technology fits their

BEFORE—AND AFTER—YOU BUY

The following advice is a gift from experienced CAD users to those just starting. It is excerpted from *The CAD Rating Guide*, edited by W. Bradley Holtz. The fifth edition of the guide has just been released [illegible] Publishing Company [illegible]

[illegible]

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as well.

Set standards: Identify your firm's processes and how bringing in CAD should complement them or how they should change. Devise and put in place standards for design, document consistency, systems usage, systems management, and training.

Make real-life comparisons: Visit actual installations to see how the programs you are considering [illegible] work. Dealers demonstrate [illegible] small, oversimplified files that [illegible] duplicate the way projects [illegible] must be handled.

Buy hardware: Put money into faster, more powerful computers, printers, plotters, and so forth. And buy as many seats up front as you can handle. Hardware represents a small fraction of the total investment needed for CAD, but it has a major impact on productivity.

Buy tools you will use: Do not make a final buying decision based on the software's spec sheet of features. How well the most-used commands are implemented is much more important.

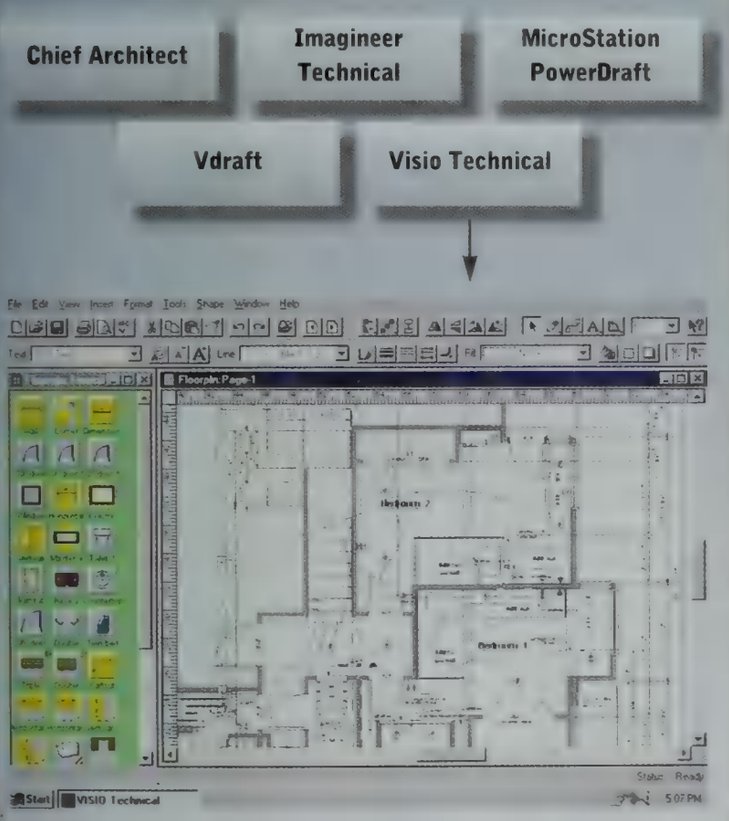
Plan the transition: You must have a well thought-out plan for moving into CAD and managing the hardware and software. If CAD workstations are given to employees without proper training, and proper management and production standards, the employees will likely use CAD the same way they used their manual drafting tools: inefficiently.

Train, train, train: Don't skimp on training and continuing education. This is where your firm realizes the long-term productivity payoffs of its investment. Make sure everyone using the system is able to spend the time necessary to learn the hardware and software.

needs. If they don't like it, they're only out a few hundred dollars and some time. And what they will learn will apply later to any software."

Indeed, some firms never do "move up." Depending on the firm's way of doing things and the complexity of its projects, a 2D drafting program may be perfectly suitable indefinitely. Also, as University of Minnesota professor Lars Peterssen notes, the firm's sophistication in the use of software may grow in tandem with the software itself. "The programs change constantly as they compete with each other for market share," says Peterssen, who helps firms get started with CAD. What this means is that features once available only on high-end applications migrate down to less-expensive ones. "If you buy DataCAD or MiniCad

2D PC Drafting Software The graphic user interface of today's Windows-based programs is a radical departure from the older text-based DOS systems that many visually oriented architects found difficult to master.



oday" as a stepping-stone to a more sophisticated program, observes Peterssen, "you won't necessarily outgrow it."

When you're shopping for CAD, keep in mind that you don't always need to pay retail. Also, some software can be leased. Other software, such as the 3D modeler DesignWorkshop, is available at no or low cost in a demonstration version which does not contain the system's full features. This gives you an opportunity to "try before you buy."

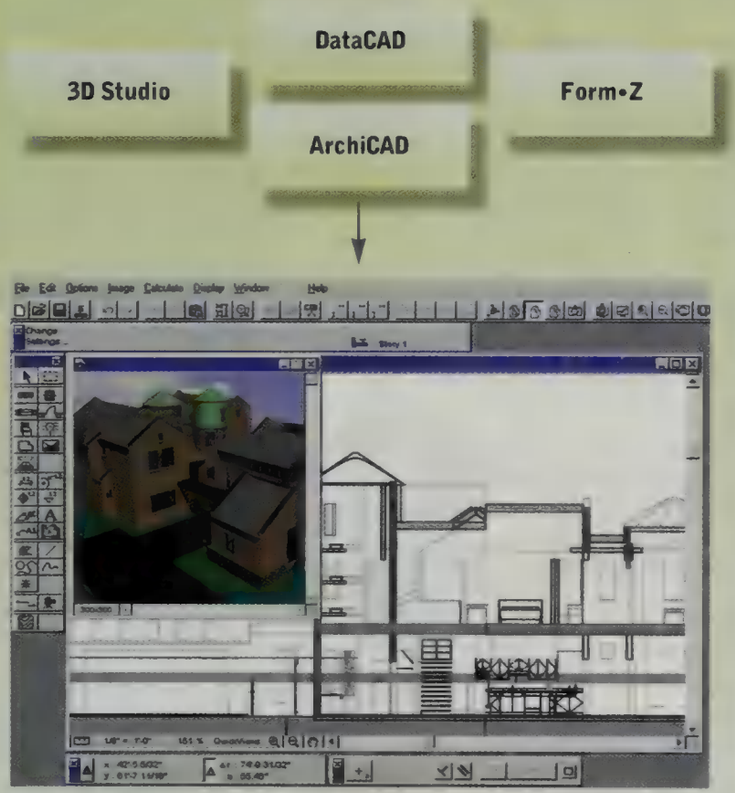
The initial outlays for hardware and software are not the full cost story. Training, hardware maintenance, software upgrades, and the inevitable but temporary loss of efficiency during learning periods all have to be factored in. It may be more economical to select a system that's more expensive initially but easier to learn or that promises more productivity improvements in the long run. Also, don't assume that any CAD system is well suited for architectural practice. Architecture-specific systems like ArchiCAD and AllPlan have what seem like high sticker prices. But other systems, such as AutoCAD and MicroStation, are really generic engines also sold to engineers and industrial designers. They can end up costing much more when you add on the third-party applications, such as AutoArchitect for AutoCAD and MicroArchitect for MicroStation. [See RECORD, January 1997, pages 169–74.]

You don't have to speak DXF

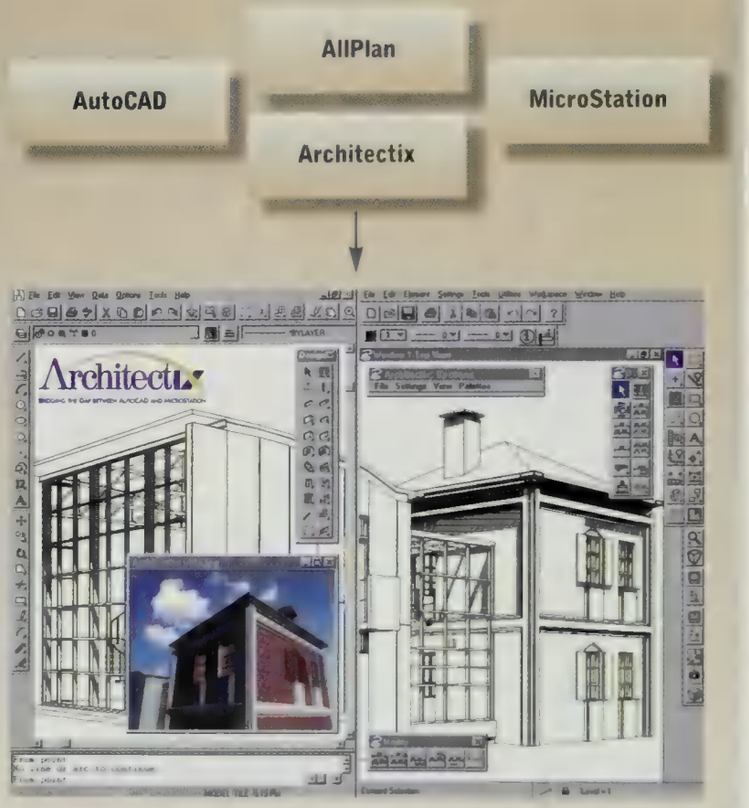
Some firms are CAD-resistant because neither consultants nor clients have demanded CAD files. Small projects may not require engineer input and speculative commercial projects may have an owner or developer who does not make facilities management a high priority. Such projects are becoming rarer, though, and institutional and public-sector clients nearly always require digital "deliverables."

The architecture firm concerned about the ability of various programs to read files has more choices than it did five or ten years ago. AutoCAD's DXF format has long been the de facto standard for file exchange, so many architects have felt obliged to work with AutoCAD. Clean translation is among the reasons AutoCAD dominates the CAD market in this country. Now, however, other systems that are more architect-friendly are able to read and write compatible files. So it's perfectly possible for a firm to work in another system, even on a Macintosh, yet be able to exchange DXF files with engineers and deliver AutoCAD-compatible disks to clients at the end of a project. The release of Architectix by IdeaGraphix seemed to portend even more compatibility. It runs AutoCAD and MicroStation simultaneously, useful for mixed-system environments. It has, however, just been acquired by Bentley; we don't yet know how it will fit into Bentley's product line.

2D/3D Systems Students often are trained on these 3D modelers or systems that integrate 2D and 3D. In the future, some say, most design work will be done on 3D models, which will generate 2D drawings as a byproduct of the process.



Full-Featured Systems Although systems of such complexity are not generally regarded as entry-level, the number and range of features may make them essential for firms with complex needs. Architectix allows users to work with both MicroStation and AutoCAD.



Is CAD finally realizing its early promise?

For a small but significant segment of the population of architects, the reason for avoiding CAD until now is that it simply hasn't been responsive to their needs. To put Frank Gehry's irregularly shaped buildings and fish sculptures on computer, for example, his office has been struggling with software designed for the aerospace industry. Others who work with curvilinear forms have simply stayed away from the mainstream technologies, which work primarily with simple room divisions and vertical walls, and offer few deviations from conventional forms.

Enhancements in 3D CAD technology give architects with a sculptural approach to form-making a reason to take a new look at software they may have passed up in the past. Chicago consultant Kristine Fallon, of Kristine Fallon Associates, Inc., has observed several firms with unusual vision about technology's ability to enhance, rather than impede, their design experimentations. Author of *The AEC Technology Survival Guide: Managing Today's Information Practice*, recently published by John [illegible] cites AllPlan as a system that fulfills many of the [illegible] development.

[illegible] introduced in this country only recently but is [illegible] freehand sketching, 3D modeling, pre-[illegible] drawing, rendering, and quantity [illegible] would not normally be con-[illegible] may have an easier time [illegible] with mainstream CAD systems.

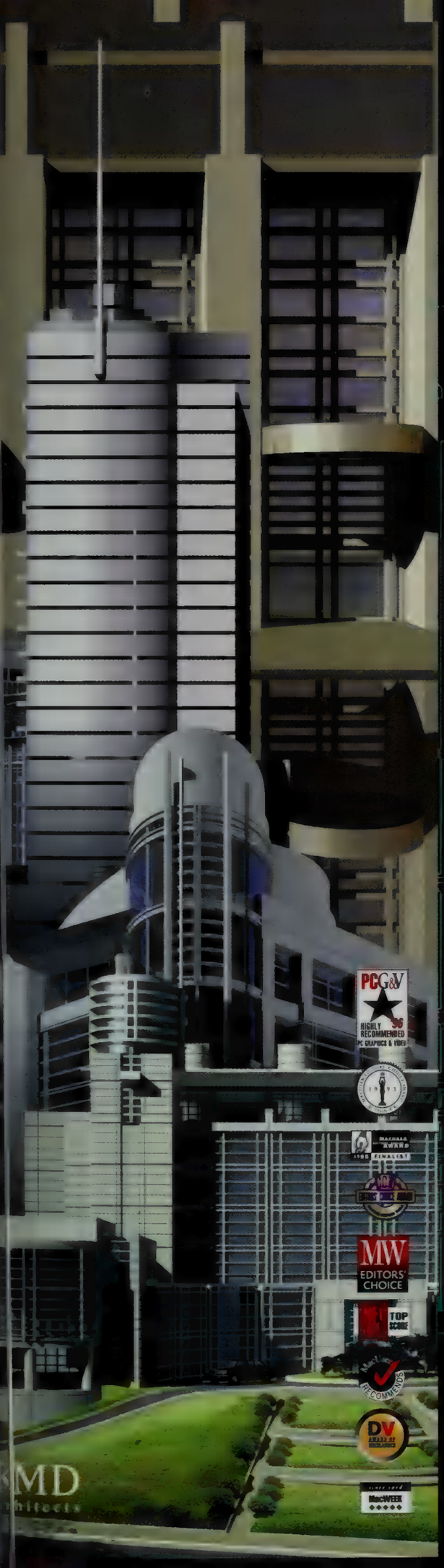
AllPlan [illegible] recently brought [illegible] using it to design the interiors for dinner-cruise ships. The system can model the complex forms of these "floating cigars," and Landahl appreciates the creativity and independence it supports. He explains: "AllPlan gives me an opportunity to think the way I typically do, but on a screen rather than a cocktail napkin, and with direct translations of those sketches into construction drawings. In a small firm like mine, you frequently don't have a technical person around at all hours. AllPlan allows me to do pretty much everything from the same screen. So if I need a drawing, I can easily get to it just as I can with paper drawings in flat files." Landahl also anticipates putting his design files on a laptop computer so he can take them to client meetings.

According to Fallon, who is assisting Landahl's office with its installation, CAD software development has finally come full circle. "Back in the early '70s," she recalls, "the goal was to make computers a value-added design aid. Early software was all in 3D with a quantitative component so you could do space totals, analyses, and so on. But the marketplace moved to 2D drafting because a general-purpose drawing tool could be sold to a population much larger than just architects." The early adopters in the '70s, she recalls, tended to be disappointed with what developed in the '80s. "Now we're beginning to see powerful PCs and interesting programs that do what people envisioned 20 years ago."

And that opens exciting opportunities for architects who are just beginning to study their options. Fallon sums up: "In my opinion, computer-aided drafting was an unfortunate sidetrack from the larger issue of automating, integrating, and streamlining design decision making. People who have avoided that detour are now in a good position to get on what I think should be the mainstream track. Intelligent building modeling was abandoned for a while, but it's moving forward. I'm an optimist about how architects will adopt technology." ■

CAD Software Sources

- *AllPlan: Nemetschek Systems, Inc.*
  800/479-0735
  http://www.nemetschek.com
- *ArchiCAD: Graphisoft U.S., Inc.*
  415/703-9777
  800/344-3468
  http://www.graphisoft.com
- *Auto-Architect: Softdesk (Autodesk, Inc.)*
  800/763-8337
  http://www.softdesk.com
- *AutoCAD: AutoCAD LT for Windows 95; 3D Studio; Autodesk, Inc.*
  415/507-5000
  http://www.autodesk.com
- *Chief Architect: Advanced Relational Technology, Inc.*
  800/482-4433
  http://www.chiefarch.com
- *DataCAD: DataCAD LLC*
  860/677-4004
  http://www.datacad.com
- *DesignWorkshop: Artifice, Inc.*
  800/203-8324
  http://www.artifice.com
- *form•Z: auto•des•sys, Inc.*
  614/488-8838
  http://www.formz.com
- *Imagineer Technical: Intergraph Corporation*
  800/345-4856
  http://www.intergraph.com
- *MacDraft: Microspot USA, Inc.*
  800/622-7568
  http://www.microspot.com
- *MicroStation PowerDraft: MicroStation Architectix Bentley Systems, Inc.*
  800/236-8539
  http://www.bentley.com
- *MiniCad: Diehl Graphsoft, Inc.*
  410/290-5114
  http://www.diehlgraphsoft.com
- *PowerCADD: Engineered Software*
  910/299-4843
  http://www.engsw.com
- *Vdraft: Softsource*
  http://www.vdraft.com
  800/877-1875
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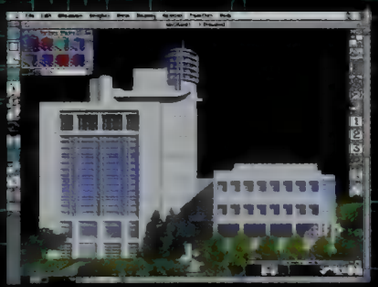
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Projects by KMD Architects
Herbert McLaughlin, Design Director
John Marx, Senior Project Designer
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Shanghai Peoples Hospital, Shanghai, China;
Panambi Office Park, Sao Paulo, Brazil;
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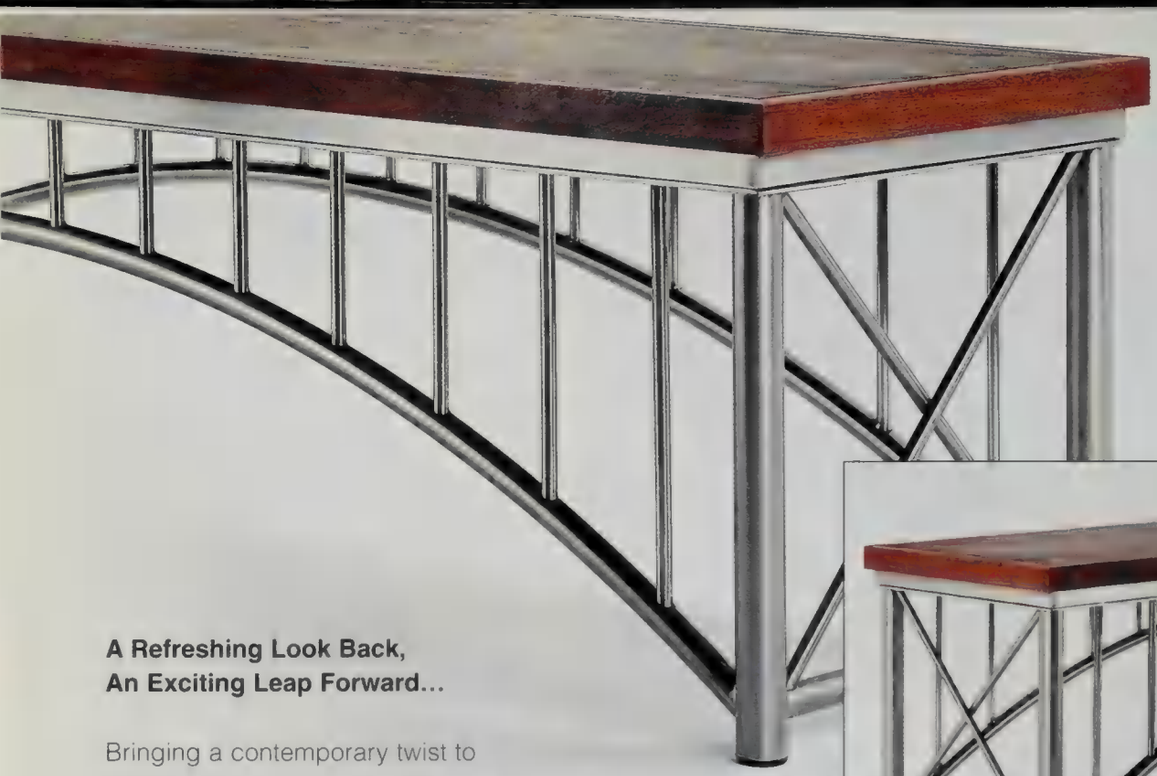
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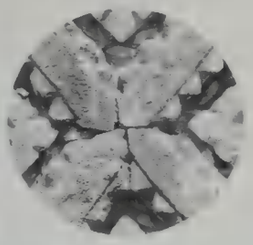


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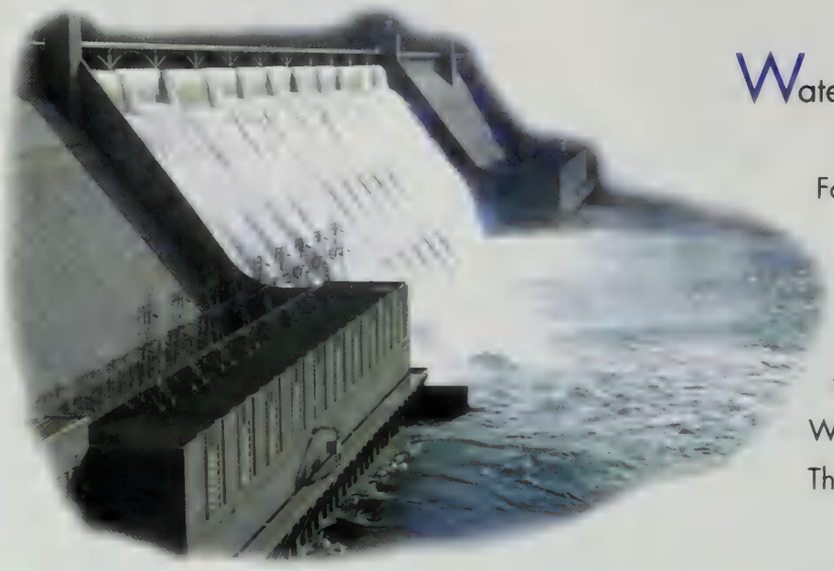


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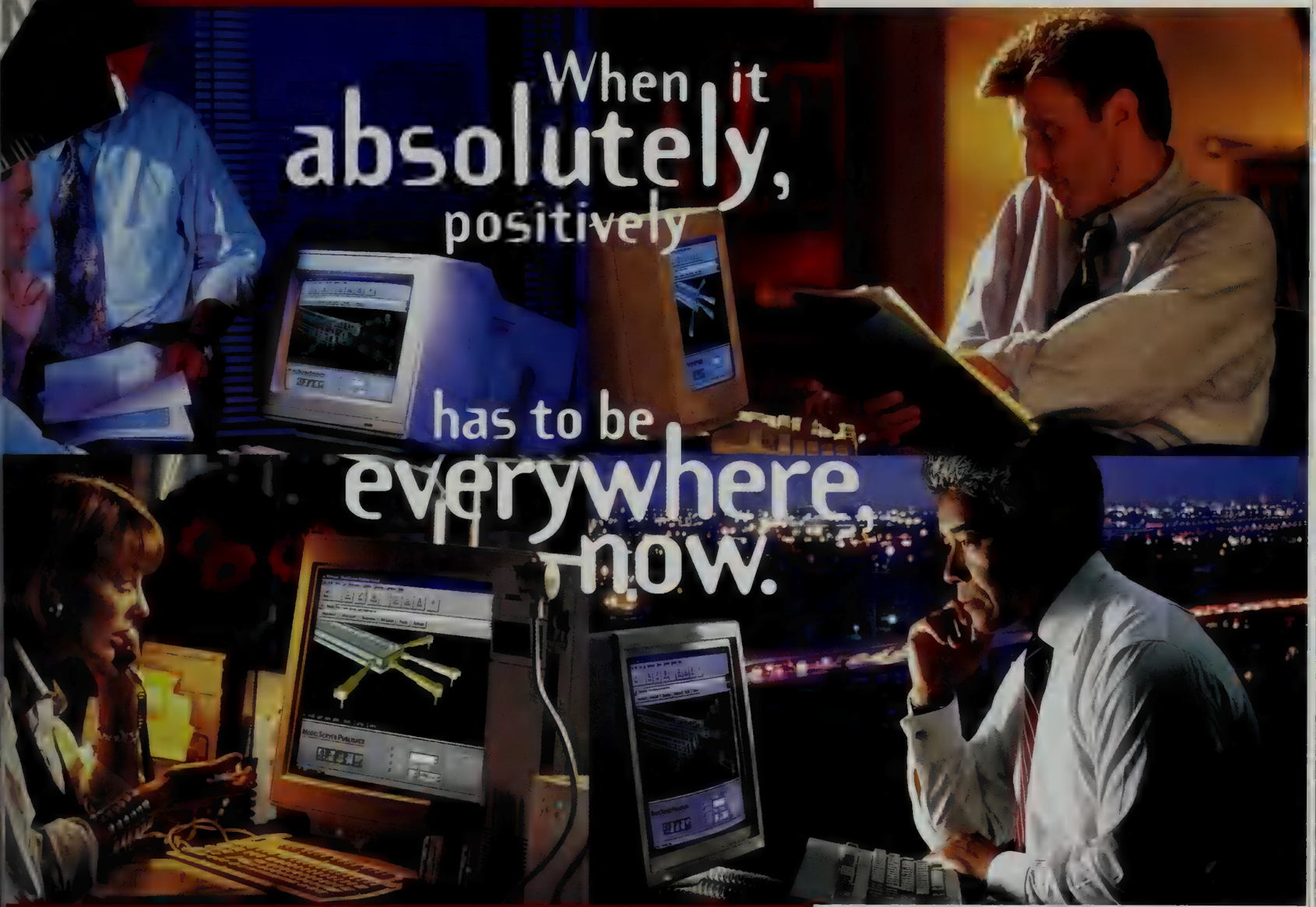
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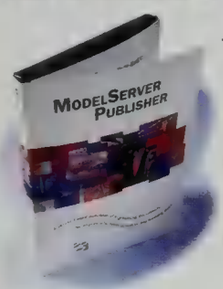
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NEW PRODUCTS

In July, RECORD's New Product pages include furniture pieces created by three architects, illustrating some of the material sensibilities and design influences their training brings to these smaller "structures." Coverage of new masonry (page 145) features a range of products that are longer, wider, bigger, stronger, or lighter. Product Briefs includes a bullet-resistant glass block in a new pattern and Victorian-style floor tiles that could have been the height of fashion in 1873. This month's coverage of new literature and design manuals also focuses on masonry and similar materials; see page 149. *—Joan Blatterman, New Products Editor*

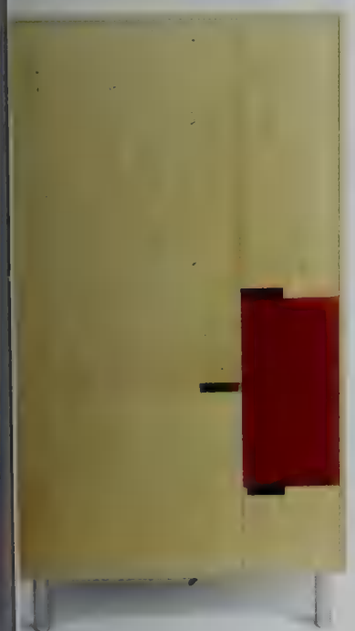
SIMPLE SHAPES INSPIRE MULTIFUNCTIONAL DESIGNS

Combining European and American esign, blending simplicity and functonality, Charles C. Deam builds his rniture by eliminating the unnecssary. "I'm inspired by things that re elegant but simple," he says. 'm inspired by the shape of a surfoard."

The Milan-trained architect, ho opened his San Francisco–ased architecture and furniture esign studio, CCD, in 1991, began is career in the studios of lemphis's Matteo Thun and ntonio Citterio. A licensed architect California, he has also worked ith architect Frank O. Gehry.

On a quest to make his furniire "essential," Deam seeks to eate furniture with multiple purses. "I'm trying to accommodate ie dualities in the way people live day," he says.

Accordingly, his Belly Table prodes both a double-sided dining rface and a storage area. The top, durable plastic laminate, can be pped over to reveal natural whiteaple wood on the other side. The minate, Deam says, is perfect for ds, while the white maple creates more formal dining surface.



Perched on tumbled aluminum legs, the hollow of the bent and painted plywood body provides the storage space, the "belly." Because the table, which seats six, is custom fabricated, any combination of colors or materials may be used.

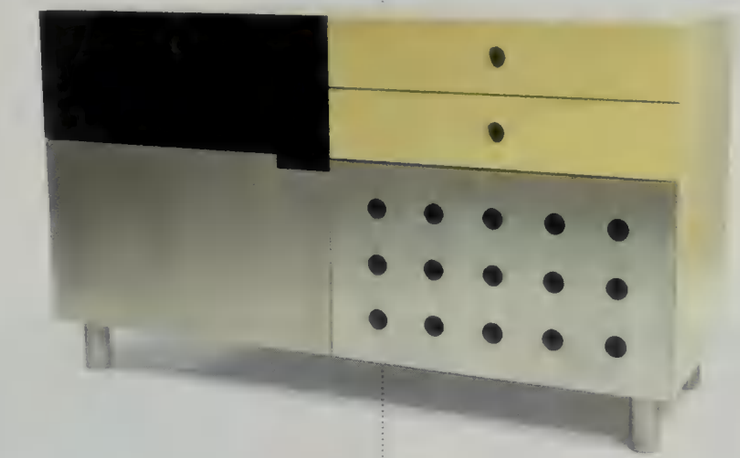
Like the Belly Table, the Stubby Table demonstrates the multifunctionality typical of CCD's pieces. This table with a "dual personality" doubles as a coffee table and a display cabinet. Hidden drawers at each end allow access to the glass-covered showcase. Made of maple and vermillion-stained hardwood, the table is also available in custom combinations .

Unlike the open-exhibition-style Stubby Table, Deam's combination TV/stereo cabinet conceals with retractable doors. On aluminum legs, Lisbon stands 60 in. high, 33 in. wide, and 24 in. deep but is also available in custom dimensions. Made of maple plywood and stained with red aniline dye, the table includes adjustable shelves to accommodate individual home-entertainment systems.

Gallery Black is outfitted with three upper drawers and two aluminum doors below. Constructed of maple plywood and aluminum, and stained with black aniline dye, the storage unit is part of the permanent collection at the San Francisco Museum of Modern Art. A companion piece, Gallery Blonde, can be combined with Gallery Black to make a storage system called the Gallery Pair.

"I'm very interested in furniture that is becoming smarter," Deam says, "that's doing more with less. My goal is to try to create pieces that make sense, by using nothing extra and by constructing them through the fewest possible moves."

Produced in Deam's studio and shop with the help of four to six assistants, his custom furniture ranges from $500 to $1,000 and above. 415/543-4305. CCD, San Francisco. CIRCLE 250







Lisbon (far left) and Gallery Black (top right) cabinets conceal, while the Stubby Table (left) doubles as a display case. The Belly Table (above) acts as both a storage unit and a multipurpose surface.

SOLVING PROBLEMS BY REDUCTION

Manipulating the ordinary, according to Eric Pfeiffer, is a way to solve a functional problem. "I'm taking the ordinary things, tweaking them, and turning them into functional things." The Pants File, below left, a prototype developed for an international Gap store, allows the retailer to conserve space and put more product on the floor. When he was first presented with the Gap's problem, the solution was obvious, Pfeiffer says, referring to his stainless-steel and sandblasted glass relative of the filing cabinet. "We're striving for some sort of purity of form," he says, "and what drives it is reduction."

Turning a table into a chalkboard was just another simple reduction, according to Pfeiffer. "Now you don't even need a pen and paper." The Chalkboard Table is constructed of powder-coated steel, an MDF top, and a stainless-steel bowl set into the surface. Other surface options, such as a dry-marker board, are also available. Each piece is custom made; prices start at $2,500. 415/495-3914. Bravo 20, San Francisco. **CIRCLE 251**





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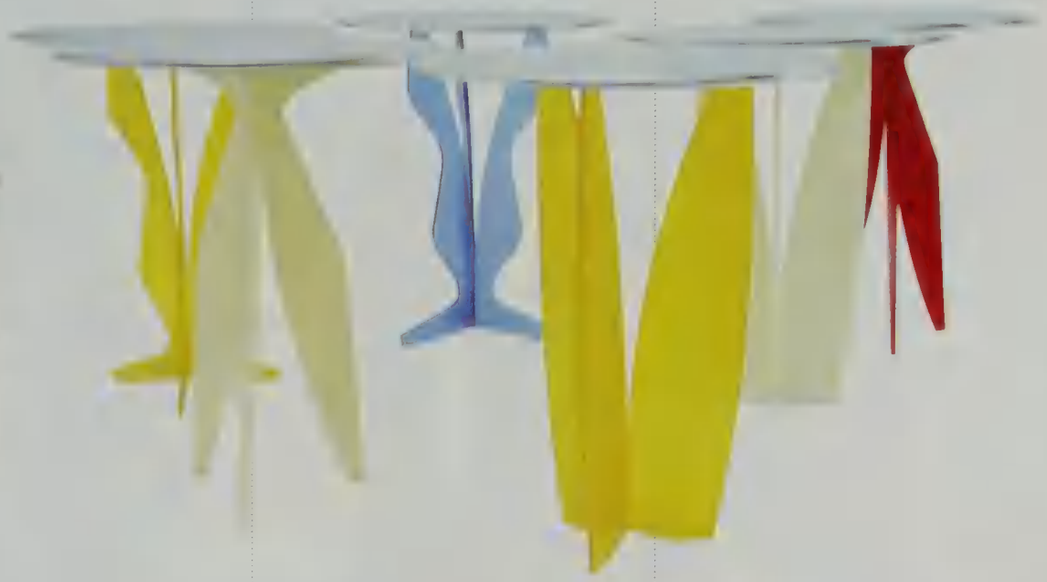
Partners Marissa Brown and Havely Graves set themselves a goal when they launched their furniture and design firm in September 1996: to broaden the scope of furniture, to make it more dynamic.

"We wanted to design something that was affordable but designed well, and that could fit in small apartments," Brown said of their Tilt-Up Tables. Intended for indoor and outdoor use, these tables feature brightly colored sand-blasted-acrylic legs that interlock to support an anodized-aluminum disk top. They are also available with legs and top made of natural maple or aniline-stained Douglas fir.

The Kitchen/Bar Stool, of maple-veneer plywood with powder-coated steel legs, consists of an inner and an outer shell. "When you lean back in the inner shell, the load is resisted by the outer shell and transferred to the frame," says Brown.

The tables cost $300, while the barstools retail for $550–600. 212/965-0284. Brown•Graves, Inc., New York City. **CIRCLE 252**





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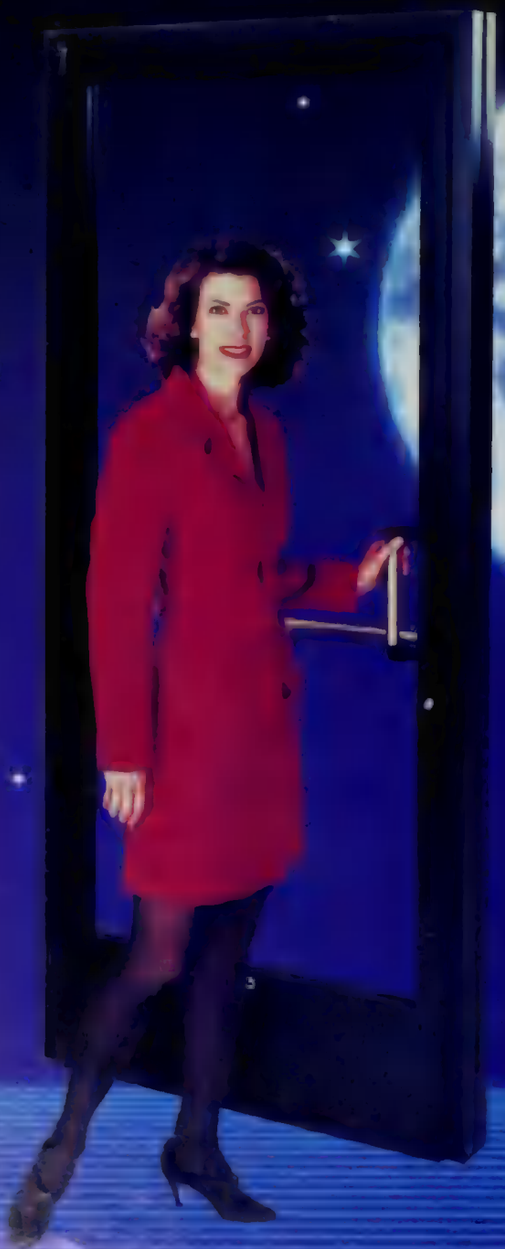
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MASONRY MATERIALS CARRY WEIGHT

ASTM's committee C-15 (Manufactured Masonry Units) has authorized a new job-site quality-assurance test procedure (C 1314) that describes the construction and testing of masonry prisms for compressive strength; the Brick Institute of America feels this data will be very useful to designers of reinforced and load-bearing masonry structures. Meeting last month, the C-15 committee also discussed hail-impact testing for fiber-cement roofing. *Masonry Standards Third Edition* (PCN 03-315097-60; 1997; $49) includes C 1314 and 53 other standards, many new or revised. Order from the American Society for Testing and Materials, 610/832-9585 (phone); 610/832-9635 (fax)—J.F.B.

▲ Sculptured brick signage

The attention-grabbing pelicans shown above are representative of the types of three-dimensional pieces this studio can create in bas-relief brick sculpture. Working from original drawings submitted by an architect or other design professional, or from sketches by their own artists, the atelier translates murals and other graphics onto a grid made of brick. Laid up on an easel, individual bricks recreate sections of the design in hand-sculpted wet clay. Each brick is then numbered, and fired separately in a brick kiln. Special care is taken to blend the thin mortar lines into the finished image. Masonry sculptures can be commissioned in almost any scale, for interior or exterior sites. 800/449-6599. Brickstone Studios, Lincoln, Neb. **CIRCLE 254**

▼ Brick-look precast

The Slenderwall architectural precast panel can now be specified in a realistic brick-texture finish. The proprietary panel system, fastened to a steel frame, has only a 2-in. thickness of concrete, making it 40 to 60 percent lighter in weight than other precast claddings. 540/439-4266. Smith-Midland Corp., Midland, Va. **CIRCLE 253**



► Autoclaved aerated concrete

A masonry product developed by Swedish architect Johan Axel Eriksson in 1924, autoclaved aerated concrete (AAC) is being made for the U.S. market in a new $35 million facility in Florida. Offered as block, reinforced floor slabs, roof panels, and lintels, AAC is as strong as standard block but much lighter, and can be cut like wood. 800/986-6435. Ytong, Ltd., Haines City, Fla. **CIRCLE 255**





◄ Wider precast double-tees

Said to be an "industry first," precast-concrete double-tees in a new, 15-ft width reduce the erection and production costs involved in the construction of parking structures. The wider structural member also lessens the number of potentially troublesome joints. Beams are delivered by trucks fitted with an unusual tilted frame that keeps the load within the highway-standard 10-ft width, lowering shipping times and costs. 800/PRECAST. High Concrete Structures, Inc., Denver, Pa. **CIRCLE 256**

▼ Concrete roofing tile

A free Windows-format CD-ROM, Boral View visualizes a Lifetile roof on over 80 different "buildings," commercial as well as residential, and lets the user explore almost infinite combinations of roofing-tile profiles, colors, architectural styles, trims, and painted, brick, and stucco exteriors. The company will customize the disk from images of specific projects. 800/274-6505, x1499. Boral Lifetile Inc., Newport Beach, Calif. **CIRCLE 257**



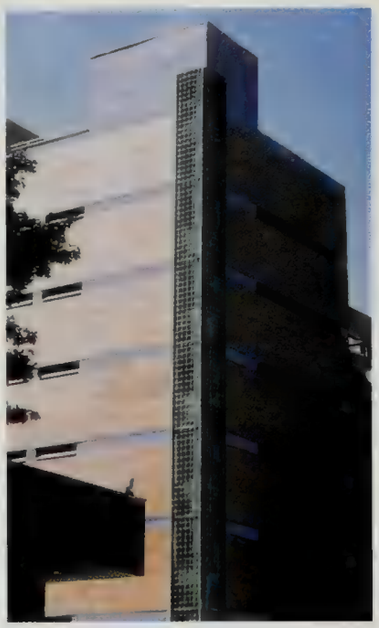


▼ Structural reinforced brick

The SuprKing structural brick—2 3/4 in. thick, 4 5/8 in. deep, and 9 5/8 in. long—is sized to accommodate standard door and window dimensions. For single-wythe, bearing-wall construction (wall, framing, and exterior finish in one), brick can meet Zone 4 seismic requirements. Units come in a range of red, brown, orange, pink, and tan colors, as well as special shapes for arches, treads, and sills. Design manual and software available. 800/414-4661. General Shale Brick, Johnson City, Tenn. **CIRCLE 258** ■



PRODUCTBRIEFS



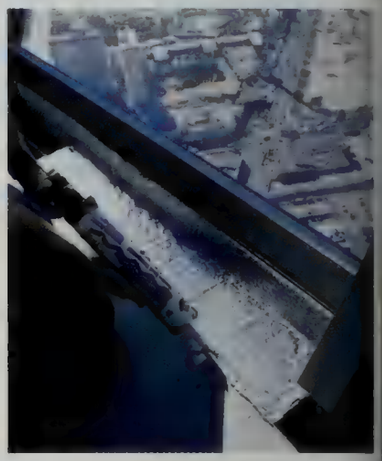
▲ Jailhouse block

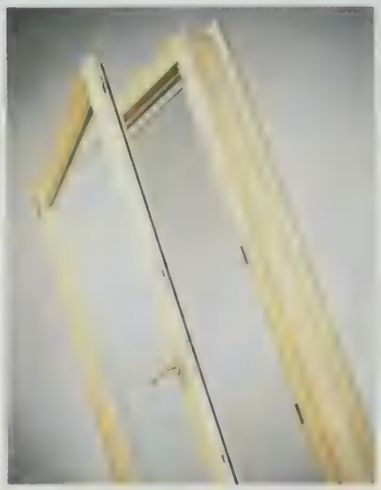
Solid-glass units 3 in. thick, Vistabriks were used by The Grosfeld Partnership, architects, to create a secure emergency-egress stairwell at the Westchester County Correctional Center in Valhalla, N.Y. As life-safety codes require 24-hour illumination within the stairwell, the enclosure becomes a nighttime accent in an otherwise monolithic facade. Now offered in a more-private stipple pattern, Vistabrik is able to withstand shots from a 30.06 rifle and pass bullet-resistance levels 1, 2 and 6, UL 752. The block transmits 80 percent of available light in both directions, and the glass itself resists marring from graffiti without offering an "obvious challenge" to taggers. 800/992-5769. Pittsburgh Corning Corp., Pittsburgh. **CIRCLE 259**

► Curtain-wall fire containment

Thermafiber insulations are available in 16 rated variations for different wall constructions, including spandrels of aluminum, glass, granite, and glass-fiber-reinforced concrete. Designed as a barrier at floor and ceiling intersections that prevents floor-to-floor fire spread, the system includes foil-faced curtain-wall insulation, safing placed between floor slab and curtain wall, and a smoke-blocking sealant at all gaps. United States Gypsum Co., Chicago. **CIRCLE 260**







▲ Tilt-turn function casement

European-style hinging hardware adds a new tilt-turn option to this maker's Magnum window line. The wood frame can swing in, as shown, for complete opening or cleaning, or tilt open at the top for secure, weather-resistant ventilation. Available in high-performance K-Kron finish. 800/955-8177. Kolbe & Kolbe, Wausau, Wis. **CIRCLE 261**



◄ Sleek suite

Part of a newly designed bathroom line, Savona pedestal lavatory is sleek and simple, with a reasonable amount of level space for sundries. Not pictured—but the star of the line—the Savona toilet represents a rethinking of gravity-flush, low-water-use plumbing. Made with smooth rounded lines and an easy-to-clean base, the w/c has features such as a "finger lift" for the toilet seat and a color-matched flushing lever. All china available in 15 colors. 800/524-9797, [illegible] American Standard, Inc., [illegible], N.J. **CIRCLE 262**

▼ Victorian-era floor tiles

A re-creation of a traditional encaustic appearance in a less costly unglazed vitrified body, British-made geometric floor tiles come in eight colors. There are also decorated tiles in matching colorways, which can be assembled along with the geometrics in large-scale panels to create designs such as Palmerston, shown below. CAD software is offered to help architects plan custom floor installations. Fax: 800/273-0636. Original Style Ltd., Exeter, U.K. **CIRCLE 263**



▼ Virtual fabric sampling

A CD library of contract, hospitality, and health-care upholstery and wallcoverings lets designers search by price, color match, pattern, weave: the program displays all fabric options in a realistic, almost 3-D format. 800/221-1540. DesignTex, New York City. **CIRCLE 264**





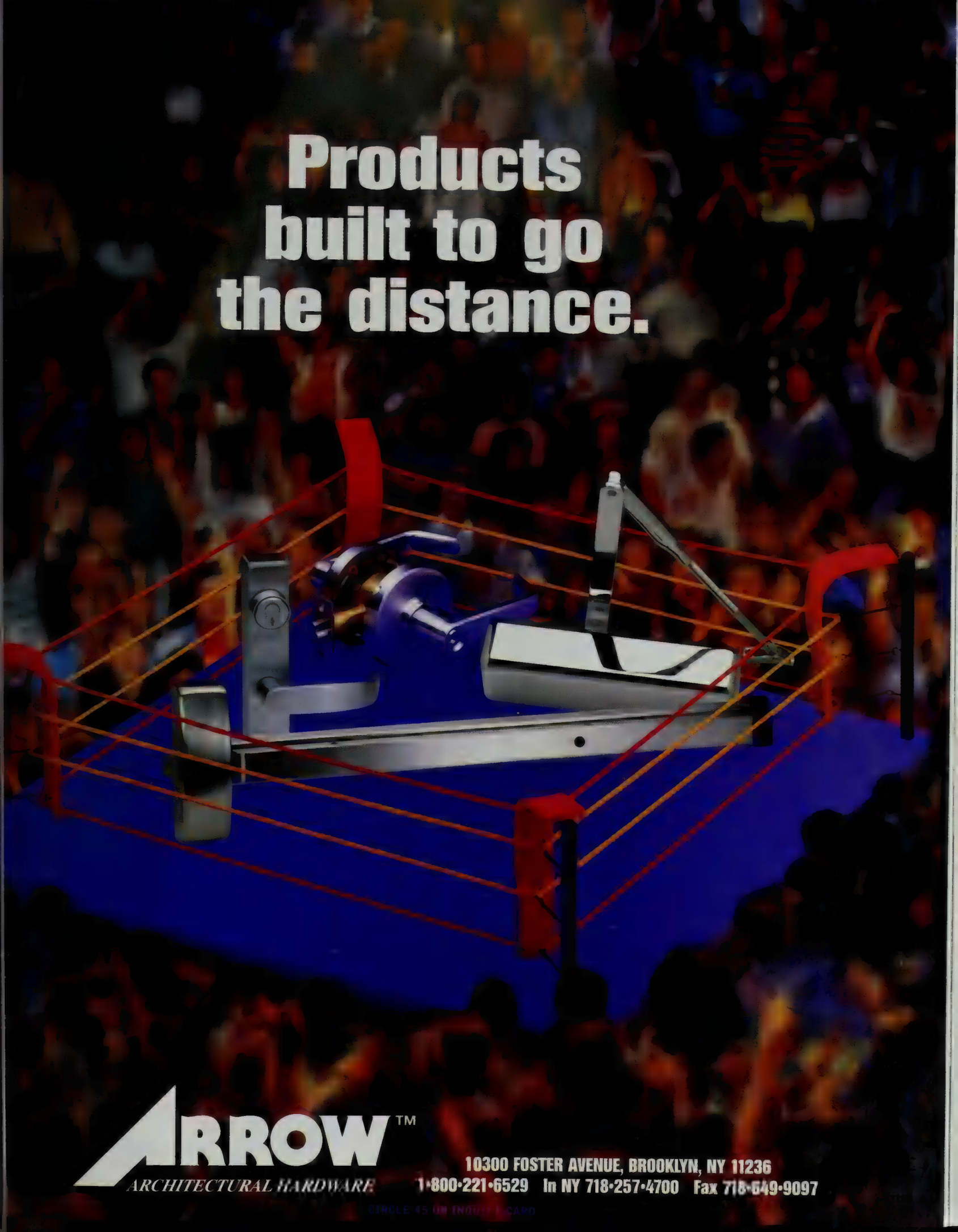
▲ Etched stainless-steel signs

An unusual chemical etching creates tactile, reverse-etched signage in permanently colored stainless steel. Graphics are fully UV- and weather-proof. Kolcolor-USA, Fort Collins, Colo. **CIRCLE 265**



▲ Tarnish-free for a lifetime

Omnia says its new Max Brass clear finish will prevent tarnish, pitting, and flaking on solid-brass mortise handlesets, such as the Regal entrance (above), even when exposed to the harshest sun and weather. 201/239-7272. Omnia Industries, Cedar Grove, N.J. **CIRCLE 266**


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A video training series prepared for building contractors and those involved in residential design shows step-by-step how to design, set, place, and finish foundations using stay-in-place insulating concrete forms. All five videos: $89.85. 800/868-6733. Portland Cement Association, Skokie, Ill. **CIRCLE 267**

Glazed masonry

A lightweight, modular block with a permanent glazed facing, Spectra-Glaze II units provide fire-safe construction, sound control, and a lifetime aesthetic. A chart displays all standard, Vari-tone, and special color options; custom glaze colors may be ordered. The Burns & Russell Company, Baltimore. **CIRCLE 268**

Full line of brick

An eight-page catalog illustrates brick in a broad range of colors, textures, sizes, and shapes, manufactured in seven different plants. An applications list cites major brick projects and the architectural firm involved. Belden's Antique Colonial brick, a specialty, can be specified in handmade shapes such as a watertable cove stretcher. 330/456-0031. Belden Brick Co., Canton, Ohio. **CIRCLE 269**

Masonry expertise

A brochure demonstrates the range of competencies offered by skilled masonry craftworkers: the trowel trades of bricklaying, tile setting, and terrazzo and stone work. A joint union/employer effort, the Institute trains both masons and architects in correct application and installation of brick, stone, and tile. 800/464-0988. International Masonry Institute, Washington, D.C. **CIRCLE 270**

Concrete-masonry inspection

"Useful and easy-to-read," a new manual helps architects and building officials create a process for examining masonry construction in the field. Checklists cover the process from preconstruction and material selection to quality-assurance testing. Single copy: $35. 703/713-1900. National Concrete Masonry Association, Herndon, Va. **CIRCLE 271**

Block overview

An Oldcastle brochure highlights innovative systems such as the Integra post-tensioned wall, insulated with expanded polyurethane for an R-value of 28. Architectural and ground-face masonry designs are included. 800/899-8455. Oldcastle, Atlanta. **CIRCLE 272** ■



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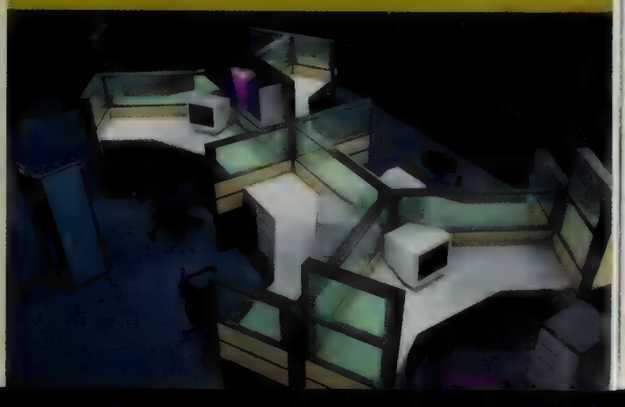
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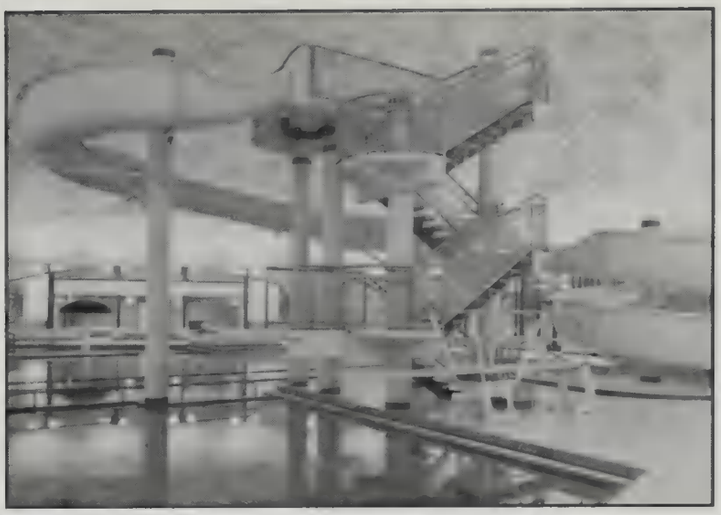
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Nikiski Pool, Nikiski, Alaska
Custom rails fabricated by KDI Paragon, Inc.

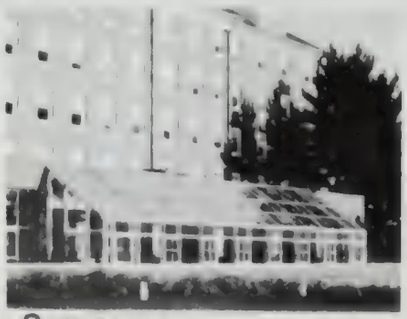
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Source: Penton Research Services

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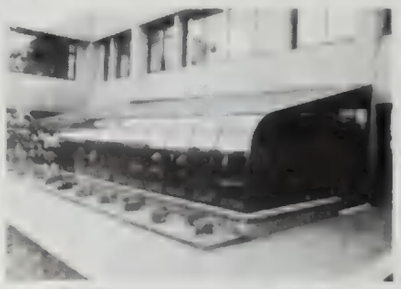
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CIRCLE ON INQUIRY CARD

(continued from page 77) has less to do with architecture than with the amazing economic dynamism that produces it. And it *is* breathtaking: the delta is total Adam Smithland. In the special zones, one can see the invisible hand working in real time and space, mapping the circuit of capital with concrete and mirror glass. There's no doubt about the results: Guangdong Province now has both the highest wages and highest living standards in China. I wish I'd been along in 1992 when Deng took his now legendary trip south to see what his new policies had wrought. I can imagine a giddy, Dr. Frankenstein experience at the sight of this creation, a pulsing city of pure accumulation. From Hong Kong to Shenzhen and up the Pearl River Delta to Guangzhou, a megalopolis had leaped into being. Soon the population of the Hong Kong–Guangzhou–Macau triangle will exceed 30 million. Already, one-third of Chinese exports originate in the delta. Show us the moneeeeeey!

Deng's formula simultaneously yielded a miracle and a disaster. On the one hand, prodigious amounts of wealth are being generated along with real improvements in the quality of life. On the other, an urban form is being produced, which, while exhilarating for its dynamism, is also a formula for trouble. The marvelous, intimate textures of Guangzhou with its beautiful arcaded streets or Shanghai with its lanes and delicate domestic architecture are being obliterated for a standard-issue version of progress. A culture of bicycles is becoming a culture of cars. The possibility for urban limits is being swallowed up in a sea of development. The environment is suffering terrible degradation. And the dominant model of city building remains too abstract, focused on apparatus and icons without a rich enough fantasy of the future. In the Pearl River Delta, ironically, one of the crucial missing ingredients is more centralized coordination of local and regional interests. The warlordlike autonomy exercised by individual municipalities has resulted, among other things, in the construction of four international airports within a radius of 30 miles and a half-built bridge begun by one town but with no place to land in the next.

The issue of such generic architecture and generic cities is not that certain programs of the global economy—office towers and business hotels, international airports and computer-assembly plants—have become a form of universal content. It's to miss the point to insist that the only effect of this economic and cultural convergence is an unavoidable skeleton of sameness, just awaiting local elaboration. Rem Koolhaas, in his bitter, size queen's enthusiasm, seeks to surf this fatalistic wave while keeping his liberalism dry in a wet suit of ironic celebration and Modernist nostalgia for universal forms. But why embrace this homogeneity? Shouldn't the question be how, within this context, meaningful difference can be achieved without reversion to decorative nostalgia, deracinated Modernism (whether OMA or HOK), Disneyfication, big bangs, or historic patterns whose own content—whether picturesque slums or the mansions of privilege—is deeply suspect?

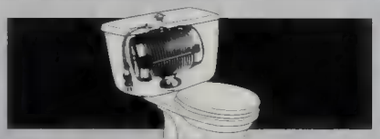
While it may be unfair to burden the Chinese with finding solutions to urban problems that no one else has been able to handle, the opportunity, the energy, and the potential synergy are themselves like no place else on earth. In the Pearl River Delta, the moment is ripe to create, for example, a coordinated system of parks and open space, and to deal with issues of growth on a regional basis. The time is ripe to reformulate basic structures of traffic. The time is ripe to reinvigorate and elaborate the idea of the satellite city. And the time is certainly ripe to dispense with one-dimensional exaltation of size and replace it with a fantasy modeled from the best of Chinese life—the scale and sense of landscape, the structures of community, the arcane geometries, the exuberant streets—that doesn't sacrifice the dynamism and creativity of the new. ■

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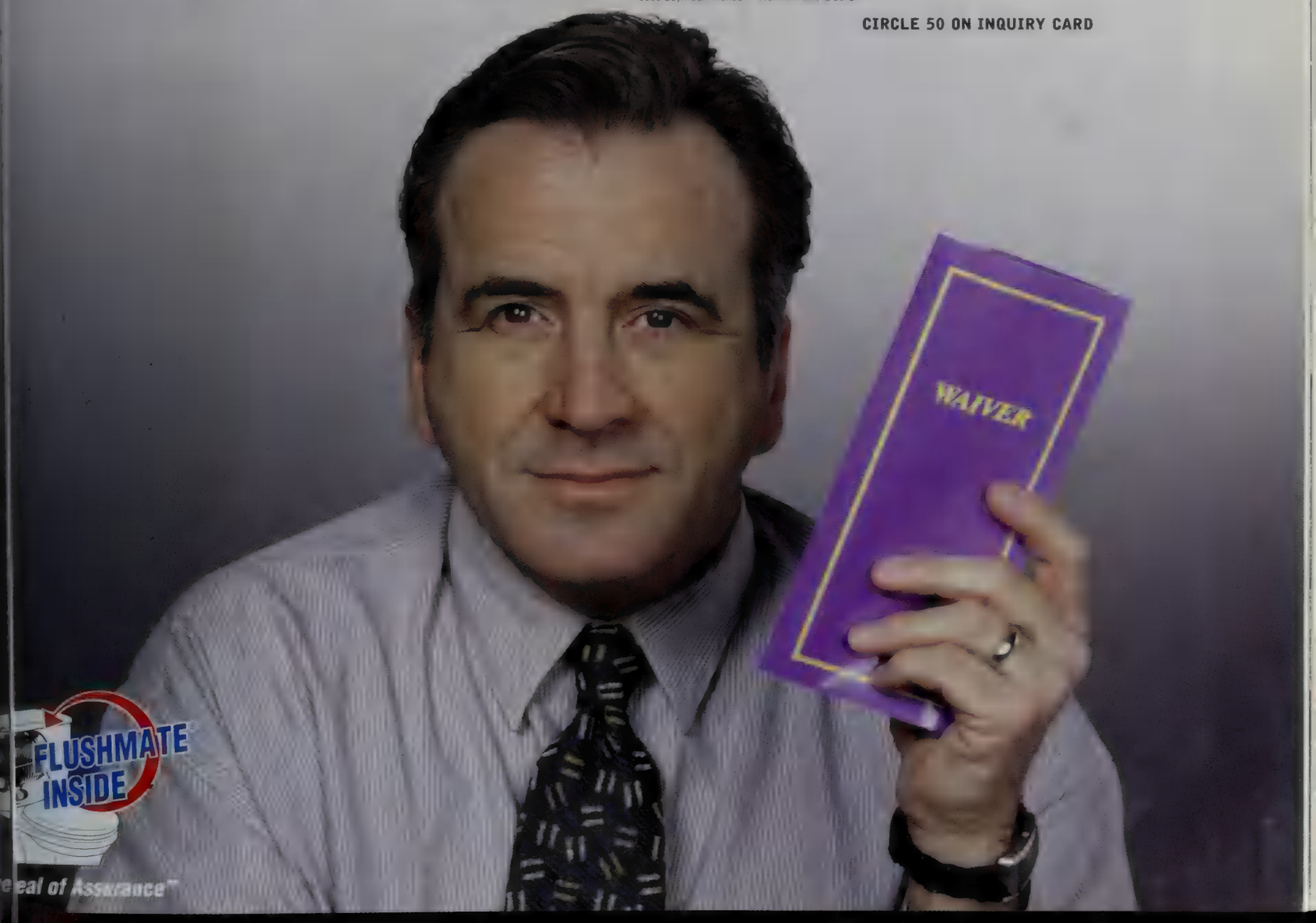


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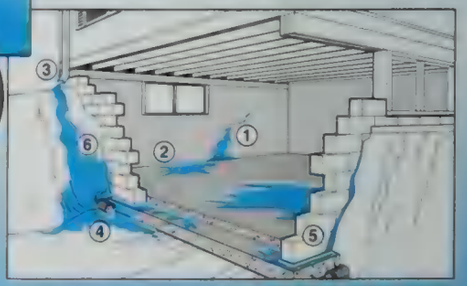
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(continued from page 34) sheets of paper; no electronic media. Contact Tomoko Ochiai, *The Japan Architect,* at fax 81/3-3811-0243. Entries must be received by September 10.

The Urban Studies and Architecture Institute has launched an international ideas competition for ferry terminal buildings in Manhattan, Brooklyn, and Queens, connecting with La Guardia Airport (unrelated to the terminal for the Staten Island Ferry). **The Fluid City/Point by Point: Ferry Stations, New York** may be entered by practitioners who completed their terminal degree within the last ten years, as well as architecture, urban design, landscape, and interior design students. The registration deadline is September 15; entries are due January 15, 1998. Contact Urban Studies and Architecture Institute, 10 West 15th Street, Suite 1126, New York, N.Y. 10011-6826. Call 212/727-2157, fax 212/727-2159, or E-mail Ldusainst@gnn.com.

Reviews

Luis Barragán: Mexico's Modern Master, 1902–1988, *by Antonio Riggen Martínez. New York: Monacelli, 1996, 256 pages, $60.*

This is no coffee-table monograph, although it does offer many photos, drawings, and renderings of Barragán's influences and his own work. The extensive and, for the most part, accessible text by Antonio Riggen Martínez, who wrote his doctoral dissertation on Barragán, positions the Mexican architect within the social, political, economic, and cultural climate of his time while analyzing the philosophical and theoretical underpinnings of his work. Martínez, with the help of introduction co-authors Francesco Dal Co and Juan José Lahuerta, takes the reader along on Barragán's highly influential journey through the 20th century.

Hodgetts + Fung: Scenarios and Spaces, *introduction by Kurt W. Forster. New York: Rizzoli, 1997, 168 pages, $50 hardcover, $35 paperback.*

The work of Craig Hodgetts and Hsin-Ming Fung cannot be easily categorized, which is, in part, what has made their Santa Monica-based studio the subject of much attention over the years. The title (and the content) of Kurt Forster's introduction, "The Supercalifragilistic Architecture of Hodgetts + Fung," is not a bad attempt to position the firm within contemporary practice. The designers' creative powers and predilection for unconventional materials and technologies are on display in this first volume dedicated to the firm's work. The book includes 32 projects, from permanent buildings to temporary structures and installations.

Moshe Safdie, *edited by Wendy Kohn. London: Academy Editions, 1997, 320 pages, $85.*

The work of the Israeli-born architect, whose career spans more than 30 years, is here given extensive coverage in a large-format publication, with an essay by and interview with Safdie. Covering 40 built and unbuilt projects, from the seminal Habitat housing complex (1967) in Montreal to the controversial Library Square (1995) in Vancouver, Safdie's monograph includes essays by Michael Sorkin on "Habitat and After," Paul Goldberger on "Rebuilding Jerusalem," Peter G. Rowe on "Trajectories, Traces, and Tropes," and Witold Rybczynski on "Northern Lights."

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PAGE NUMBER	READER SERVICE NUMBER	
171		AEC Systems
160		American Institute of Architects
120-121	*33*	Andersen Commercial Group
36		Apple Computer ,Inc.
covII-1	*1*	Armstrong World Industries
covIII	*60*	ARRIS
147	*45*	Arrow Architectural Hardware
32		Autodesk LT
133	*37*	Autodessys
159E	*55*	Belden Brick Company
137-139	*41*	Bentley
28	*27*	C/S Group
142-143	*43*	Canam Hambro
140	*42*	Castelite Steel Products
19	*11*	Ceco Door Products
70	*23*	Celadon Ceramic Slate
32A-H		Centria
6-7	*4*	Ceramic Tiles of Italy
153	*54*	Construction Specifications Institute
159W		Consumer Relocation Services
128	*36*	Diehl Graphsoft
10	*6*	DuPont Corian
37	*17*	EFCO Corp.
17	*10*	Exterior Technologies Group, Inc.
151	*50*	Flushmate/Sloan Valve Company
127	*35*	Follansbee
134	*38*	Forms & Surfaces
78-79	*25*	Glen Raven Mills, Inc
148		
21		
2		
135		
80		

PAGE NUMBER	READER SERVICE NUMBER	
162	*57*	Kalwall
150	*48*	KDI Paragon Inc.
35	*18*	Kim Lighting
94	*30*	Laticrete International
122	*34*	Lehigh Portland Cement Co.
80	*26*	Libbey-Owens-Ford
149	*47*	Lightscape
106	*32*	Ludowici Roof Tile
167-170		Manufacturer's Spotlight
4-5	*3*	Marlite
38-39	*20*	Marvin Windows & Doors
92	*29*	Metpar Corp.
2	*2*	Montgomery KONE
97-104	*98*	National Concrete Masonry Assoc.
165	*59*	National Gypsum Company
163	*58*	PALCO/Pacific Lumber Company
150	*49*	Patio Enclosures
68	*21*	Pella Windows & Doors
15	*9*	Pavestone Company
136	*40*	Portland Cement Association
8-9	*5*	Prescolite
24	*14*	Raco Altura
161	*56*	Seiho International
71	*24*	Sherwin-Williams Company
152	*52*	Style-Mark, Inc.
69	*22*	Subaru
105	*31*	Summitville Tiles
152	*51*	Technical Glass Products
144	*44*	United States Aluminum
covIV	*61*	USG Interiors
12	*7*	Vistawall
22-23	*13*	Weather Shield
33	*19*	Wilsonart International
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188		World Workplace '97
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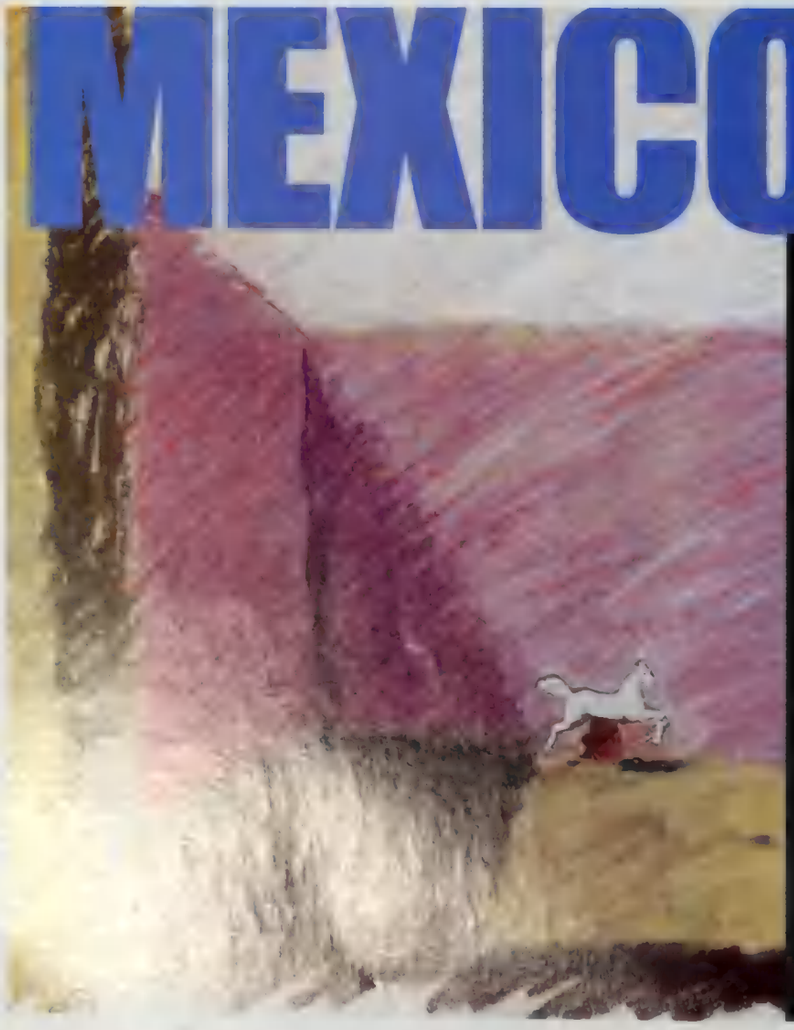
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1997

(continued from page 14)
regionalist approach have always been inherent to a definition of "good architecture."
—William Bechhoefer, FAIA
Director, Regional and International Studies, School of Architecture, University of Maryland
Baltimore

Licensing exam

Your splendid May issue was spoiled by a letter from Charles D. Carter [RECORD, May 1997, page 32]. He suggested that Bracken Raleigh, the designer who has failed to pass the NCARB exam 30 times [April, page 28], should seek therapy.

Carter's acidic attempt at humor underscores an important aspect of the public's perception of architects: unbridled arrogance. He argues that the architectural profession must look past individuals to do what is best for our grand institute's position of community importance. Carter's call for the AIA to swat Raleigh's hand for practicing without a license shows the lunacy of our predicament and his own naivete.

Surely, we will admit that unlicensed, recent graduates do the majority of the work in our firms. To think that the AIA is going to stand in the way of an opportunity for project profitability is twisted logic.
—Daniel Alexander
MPC Associates, Inc.
Washington, D.C.

Preserving Modern ideas

Alastair Gordon's provocative *Speak Out* column [RECORD, April 1997, page 26] used the Aluminaire House as an example in his essay on preserving Modern architecture. As directors of the Aluminaire project at the New York Institute of Technology, we can amplify his argument.

The Aluminaire House has been moved three times since its completion in 1931. The first two moves were to separate locations on the property of architect Wallace K. Harrison. The last move, which saved the house from demolition, was to our campus in 1988–89. These moves, combined with the insensitive changes made by Harrison, left the house beyond repair, particularly the aluminum panels that represented its critical image.

We had to argue for replacement of the panels to our primary source of funding, New York State. This argument was made into a carefully constructed Historic Structures report with our consultants, Higgins and Quasebarth of New York City. We had to formally state the case that it was more important to save an "idea" than a "thing." With the acceptance of this report, New York State has gone beyond standard definitions of preservation to accept our concept and approach.

The house was an experiment in ways to use new materials and ideas about space to create affordable housing solutions. This is as pressing a problem today as it was in 1931. The intervening years and polemics have not advanced us much with regard to this critical issue. The Aluminaire House may continue to remind and move us since the project represents (preserves) this idea; it is not merely an aged artifact.
—J. Michael Schwarting and Frances Campani
School of Architecture and Design, New York Institute of Technology
Central Islip, N.Y.

RECORD may edit letters for grammar, style, and space availability, taking care not to change the author's meaning.

Correction

In "Crescent City on the Edge" [RECORD, May 1997, pages 136–39], credit for the New Orleans Center for the Creative Arts should have been given to the joint venture of The Mathes Group, APC and Billes/Manning Architects.

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INSTRUCTIONS

◆ Read the article "AIA Documents: The Rules Are Changing" (pages 123–26), using the learning objectives provided to focus your study.

◆ Complete the questions below, then check your answers (top of page 164).

◆ Fill out the self-report form on page 164 and submit it to receive two AIA Learning Units.

—Mark Scher, AIA Director Professional Education Products and Services

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1. Why might the new B141 be characterized as both more demanding and more beneficial with regard to architect and owner communication?

2. Describe three key areas in the new B141 that are said to improve the professionalism of the agreement.

3. What dispute mechanisms are called for in the new documents?

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b) The client wants you to evaluate an existing facility.

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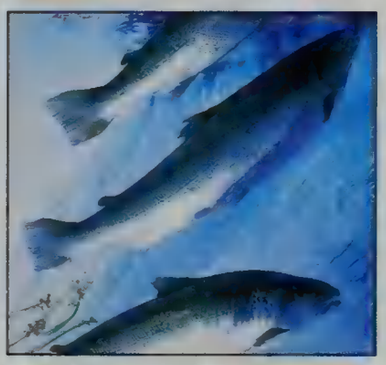
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AIA/ARCHITECTURAL RECORD CONTINUING EDUCATION

ANSWERS

Answers refer to the article "AIA Documents: The Rules Are Changing" (pages 123–26). The questions appear on page 162. To receive CES credits, fill in the self-report form below.

Answer 1. The B141 contains an Agreement form to help get at the initial assumptions and expectations of the parties. The separate Scope of Services facilitates communication with a more explicit description of the architect's services. To construct the contract, the parties must have dialogue to establish key project details and to minimize future disagreements.

Answer 2. The new form bolsters professionalism with provisions for conflict of interest disclosures and client confidentiality safekeeping. Adding to the professional character of the architect's services is the protection of an architect's work, including documents in electronic form and those covering ownership and transfer.

Answer 3. Both the A201 and the B141 include arbitration and mediation. Under the B141, mediation expenses are shared equally betwee architect and owner. Both agreements contain a mutual waiver of cons quential damages. This is a form of a limitation of liability provisio where both parties agree to limit their claims to only direct damage Also, though not strictly a dispute process, in the event that an owner te minates the contract for convenience, architects will be suitab compensated.

Answer 4a. You begin with the Agreement form. Then use the Scope Services for Design and Contract Administration Services (the Scope Services that will be published with the Agreement form in Octobe One or more of the attachments may be used to expand the Scope, eith at the outset of the project or later on, depending on the needs of t project.

Answer 4b. You begin with the Agreement form. You then need develop your own scope of services, as none has yet been developed f facility evaluation only.

Answer 5. Yes. Termination for the owner's convenience is permitt under the new A201. Generally the contractor may not recover for con quential damages, because both parties waive their right to su damages under the new A201.

AIA/CES SELF-REPORT FORM

(Use to report learning units earned for Architectural Record only)

Member Information:

Last Name **First Name** **Middle Initial or Name**

AIA ID Number

Program/project title: Architectural Record (07.97)

Check the following as applicable.

"AIA Documents: The Rules Are Changing," pages 123–26

Completion date (M/D/Y): _____ / _____ / _____

Quality Level (QL) of this program: Each article will earn you a total of 2 LUs at Quality Level 2. (fill in:) ____ total LUs.

Quality Level for this article is 2. Completing the section earns a total of 2. Material resources used: Journal article or sponsored section. This program addresses issues concerning the health, safety, or welfare of the public.

I [illegible] the above information is true and accurate to the best of my knowledge and that I have complied with the [illegible] Guidelines for the reported period.

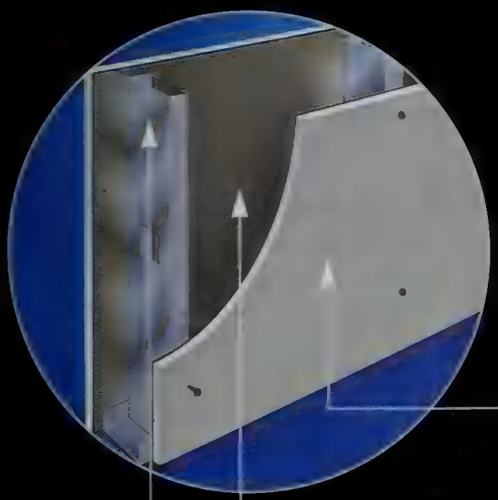
Date

[illegible] Oklahoma, Continuing Education, AIA/CES, Room B-4, 1700 Asp Avenue, Norman, OK 73072-6400. [illegible] 800/605-8229.

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CIRCLE 59 ON INQUIRY CARD

Understanding The Workplace Means Viewing It From All Perspectives



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Oct. 5-7, Dallas, Texas, USA

Only one event allows you to explore all aspects of a productive workplace. World Workplace '97 is where professionals meet to learn and discuss the latest ideas involved with providing effective work environments.

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World Workplace brings together the workplace industry's most well respected organizations. Choose from 86 educational sessions and 22 round tables covering a panorama of concepts pertaining to architecture, construction management, design, engineering, facility management and real estate.

Examine Possibilities

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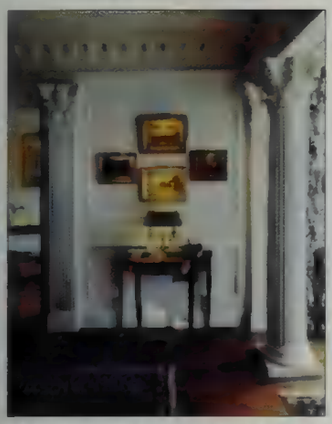
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Chadsworth's Columns

CIRCLE 150 ON INQUIRY CARD

AEGIS II

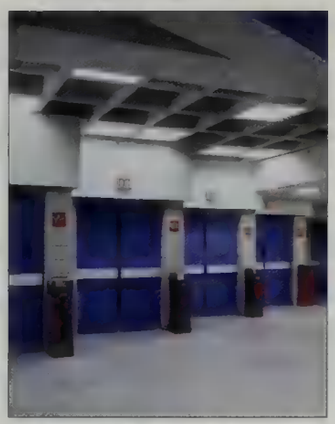


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Ameristar

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Total Door® is a fire rated door assembly that includes all hardware. Pairs do not require coordinators, vertical rods, astragals, flush bolts or floor strikes. Will retrofit to any frame. Meets all codes and ADA. Wood and metal faces available to 3 hours. Lifetime limited warranty on locks and panics.

Openings®

CIRCLE 152 ON INQUIRY CARD

Concrete Waterproofing by Crystallization



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Xypex Chemical Co.

CIRCLE 153 ON INQUIRY CARD

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These bronze elevator door facings were manufactured by Surface Design + Technology specializing in custom & standard metal graphics. Using sheet metal finishes of a variety never offered before. There is virtually no limit to the types of patterns which can be created by combining multi-directional satin brushing, electroplating of gold, nickel or copper. For information on custom or standard designs call 800-537-1127.

Surface Design

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12 New Products Featured in 1997 Catalog



12 new products are introduced in Strong-Tie's '97 catalog, Wood Construction Connectors. A necessary reference for structural engrs, building officials, & architects, it includes updated specs, load charts, application drawings, & building code acceptance - plus info on holdown anchorage design, & avail. custom hanger options. ISO9001 Reg. For 1997 catalog (C-97), write POB 10789, Pleasanton, CA 94588

Simpson Strong-Tie

CIRCLE 155 ON INQUIRY CARD

Accessible Lavatory Insulation



A full color catalog will explain the different Handy-Shield safety covers offered for the new or retrofit projects that need to comply with the American Disabilities Act. The specific use, sample specifications, drawings and color choice are all summarized in this easy to understand catalog. 800-475-8629.

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Heat-N-Glo

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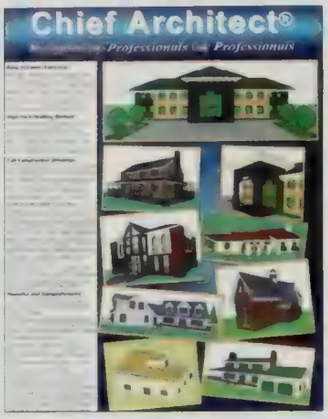


Atlas Door™ Rolling Doors and Grilles are engineered to meet your most stringent design needs, including special opening requirements such as Horizontal, L-shape, S-shape or Angled Track. Engineers are available to assist in design application, limitations and code requirement compliance. Call 800-959-9559.

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ART

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Crafts an extensive array of Architectural Elements carved in solid woods. 104 pg. catalog shows a selection of capitals, corbels, moldings, onlays, panels etc. Stocked in Maple and Red Oak, avail. for immediate delivery. Spiral Bound catalog $20.00, Special binder version $30.00. Visa & MC welcome. Brochure Available. Raymond Enkeboll Designs, 16506 Avalon Blvd AR77 Carson, Ca. 90746. T: (310) 532-1400 F: (310)532-2042

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has been sheltering America for over two centuries. As a roofing material, it is prized for its high mica content, natural cleft and texture, as well as its non-fading and distinctive handmade quality. Because of it's permanence and natural beauty, it was specified by Thomas Jefferson in the 1800's and remains today the roofing choice of eminent architects. P.O. Box 8, Arvonia, VA 23004. Tel: 1-800-235-8921.

Buckingham-VA Slate

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is placed on top of the flashing inside the cavity, where it catches & permanently suspends mortar droppings above the level of the weep holes. Its enhanced design ensures [illegible]

[illegible]

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H Window Co.

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Grass Paving at the Orange Bowl

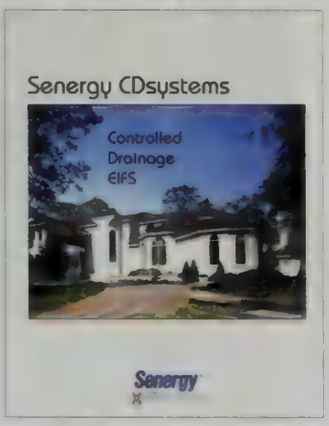


The Orange Bowl Stadium in Miami has an improved parking lot of grass with Grasspave2. 100% grass finished parking bays are compatible with asphalt aisles. 92% root area is best for grass health, maximum porosity and improved water quality. New 100 m2 rolls (1076 sf) make installation fast and easy. Landscape Architects assist with design, call 1-800-233-1510, fax 303-373-1223.

Invisible Structures, Inc.

CIRCLE 166 ON INQUIRY CARD

Senerflex CDsystem and QR-CDsystem



Senerflex CDsystem and QR-CDsystem are two new exterior insulation and finish systems from the Senergy Division of Harris Specialty Chemicals, Inc. CDsystems provide a sure means for controlling drainage of incidental moisture that may enter the wall. CDsystems offer a wide color selection, variety of textures, interesting aesthetic options, reduced energy costs, and low maintenance.

Senergy

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The Basin-Guard™ undersink enclosure attractively conceals unsightly plumbing and mechanical connections while maintaining knee and foot clearances mandated by A.D.A. It can be installed under kitchen sinks or restroom lavatories where countertops and sidewalks are present. The Basin-Guard™ is offered in 36" and 42" widths in white or beige and is easily trimmed down with common tools.

Truebro, Inc.

CIRCLE 168 ON INQUIRY CARD

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Circle Redmont, Inc.

CIRCLE 169 ON INQUIRY CARD

Fire Retardants and Preservatives

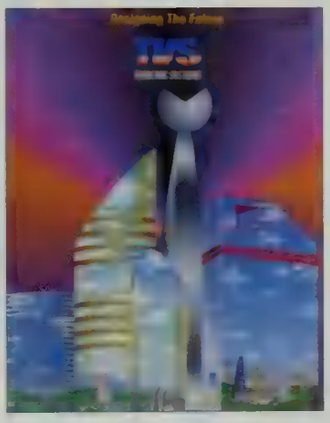


New 12-page Sweet's catalog features Pyro-Guard® interior type fire retardant lumber & plywood for roof systems & other interior structural uses; Exterior Fire-X® FRT lumber & plywood for decks, balconies, siding & other exterior uses; & CCA/KDAT preservative treated lumber & plywood that's kiln dried after treatment. From Hoover, the USA's largest producer of fire retardant treated wood.

Hoover, Inc.

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- Custom design each system to building specifications

Transvac System, Inc.

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Universal Gas Furnace

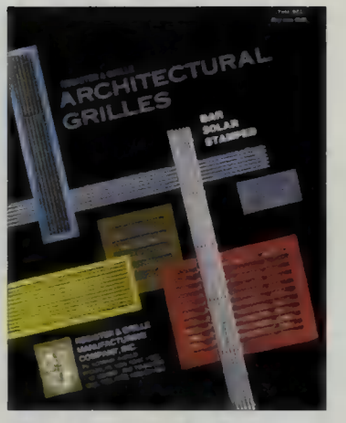


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Rinnai America

CIRCLE 172 INQUIRY CARD

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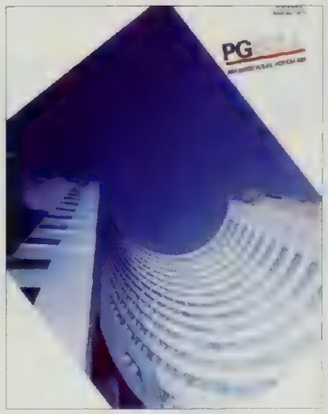


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A/D Fire Protection

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Pan-Tech

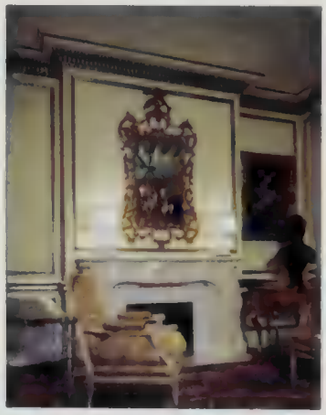


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Pan-Tech Inc.

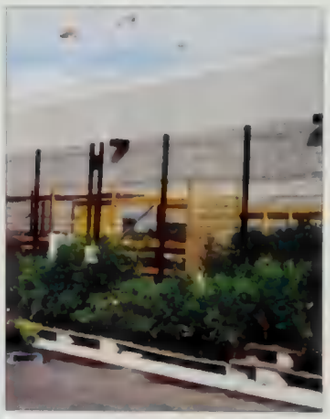
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Omega Fence Systems

CIRCLE [illegible] INQUIRY [illegible]

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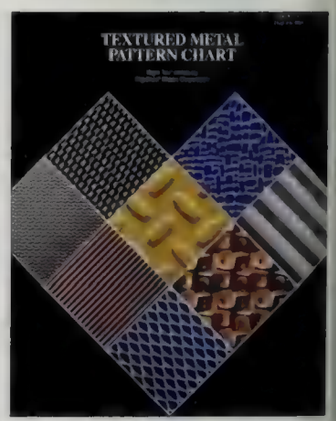


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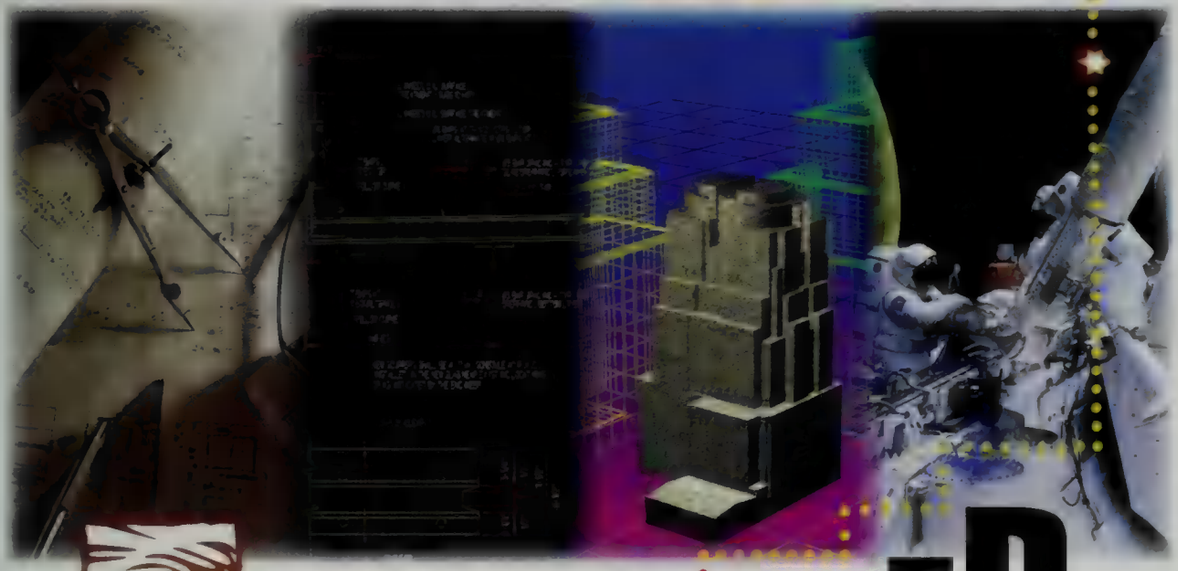
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THE FUTURE: A new urban transit system stands a chance of getting people out of their cars.

BY JOHN KLETTENHEIM



I have seen the Future (on video) and it just might work. This month's column describes a developing light-rail technology that promises to reduce traffic congestion with fixed-guideway transit that fits easily into an existing urban street grid; costs much less than other light- or heavy-rail systems, subways, or roads in crowded cities; and, unlike buses, should be really fun to ride.

On a recently decommissioned navy yard in South Carolina sits a quarter-scale model of a transit idea that needs only a funding boost (from ISTEA's Congestion Mitigation and Air Quality program?) to go into real-life operation. In development over the last 10 years, the concept has received lots of favorable buzz in engineering and mass-transit circles here and abroad.

Called System 21, the transit system has streamlined, podlike cars and sleek, slender pedestals. And the engineering is elegant. Unlike other monorail-type equipment, which needs expensive dual tracks or offers only closed-loop layouts, this design provides for simultaneous two-way traffic on a single, 6-ft-wide hollow-wedge elevated beam. Individual cars, constructed of a rugged fiberglass/plastic composite, are cantilevered from either side of this beam by a steel outrigger structure; steel wheels on each car travel in a contoured rail truck recessed in the beam. Standard commercial DC power is delivered via the beam to alternators onboard each car, which in turn supply AC current to each of the independent drive wheels. Single cars can hold about 50 passengers, with extra space available for special-needs users. Cars and support beams are modular, and easily connected. (Futrex claims the entire system can be removed and reassembled elsewhere.) Train makeup can be adjusted quickly to meet peak-hour traffic requirements without need for a switching yard.

Working from an original design by aerospace engineer Lawrence K. Edwards, the fixed-guideway transit scheme is being developed by Charleston, S.C.–based Futrex, with a group that includes the Battelle Memorial Institute, transportation consultants Frederic R. Harris, Inc., and engineers Powers Design International contributing significant technical and financial assistance. The government also anted up a $1.25 million seed-money loan from a Commerce Department fund intended to advance American technology. (Canada, France, and Germany all have substantial urban-rail manufacturing capacity, but this equipment is considered by transit experts to have limitations, such as a price tag in the $50 to $70 million-per-mile range.)

The consortium is planning to build a 1.6-mile full-scale version at Charleston International Airport that will demonstrate System 21's ability to carry large numbers of passengers safely at speeds of up to 60 miles per hour. (Speeds of up to 100 miles per hour will be possible eventually.) So far, model-test results appear to validate the proprietary structural and mechanical design elements. While System 21 incorporates existing steel-wheel drive technology, it has many unique, patented features, including the method of attaching the cars to the beam and the mechanics of grade-separated branching, which let the cars switch direction smoothly.



With slender supports and a compact footprint, System 21 stations will fit easily into an urban setting.

Architectural implications

System 21 should be able to fit relatively unobtrusively into existing streets, where design issues are air space, span lengths, and minimizing intrusion at grade level. System 21 can take on and discharge passengers, round tight curves (the system has a 90 degree turning radius), and switch from branch to main line—all 16 feet in the air. A station able to accommodate four cars would need a 14-by-120-ft ground-level landing area to provide station access by stairs and elevator (top photo). In its current, steel-framed configuration, System 21 can span 84 feet from column to column; planned precast-concrete structures will be able to carry about 100 to 120 feet between supports. The guideway columns are slender, requiring only a compact, 18-in.-high concrete base pedestal. Site-work involves just the preparation of the 7-by-7-by-2-ft foundation for each column, supported by four pilings driven to bedrock. All other components—beams, stations, branching points—are manufactured and assembled off site, to be placed by trucks and lift cranes as foundations are ready.

While the standard height is anticipated to be in the 16-ft range, easily clearing ground-level truck traffic, the system can be placed just a foot off the ground—say in a fenced right-of-way. Heights of 40 to 50 feet are possible, and trains can handle grades of up to 10 percent. Futrex says the beam-mounted rail system can meet hurricane-force winds and Los Angeles–caliber seismic loads.

And about that video: call 803/853-3207 to get one free. ■

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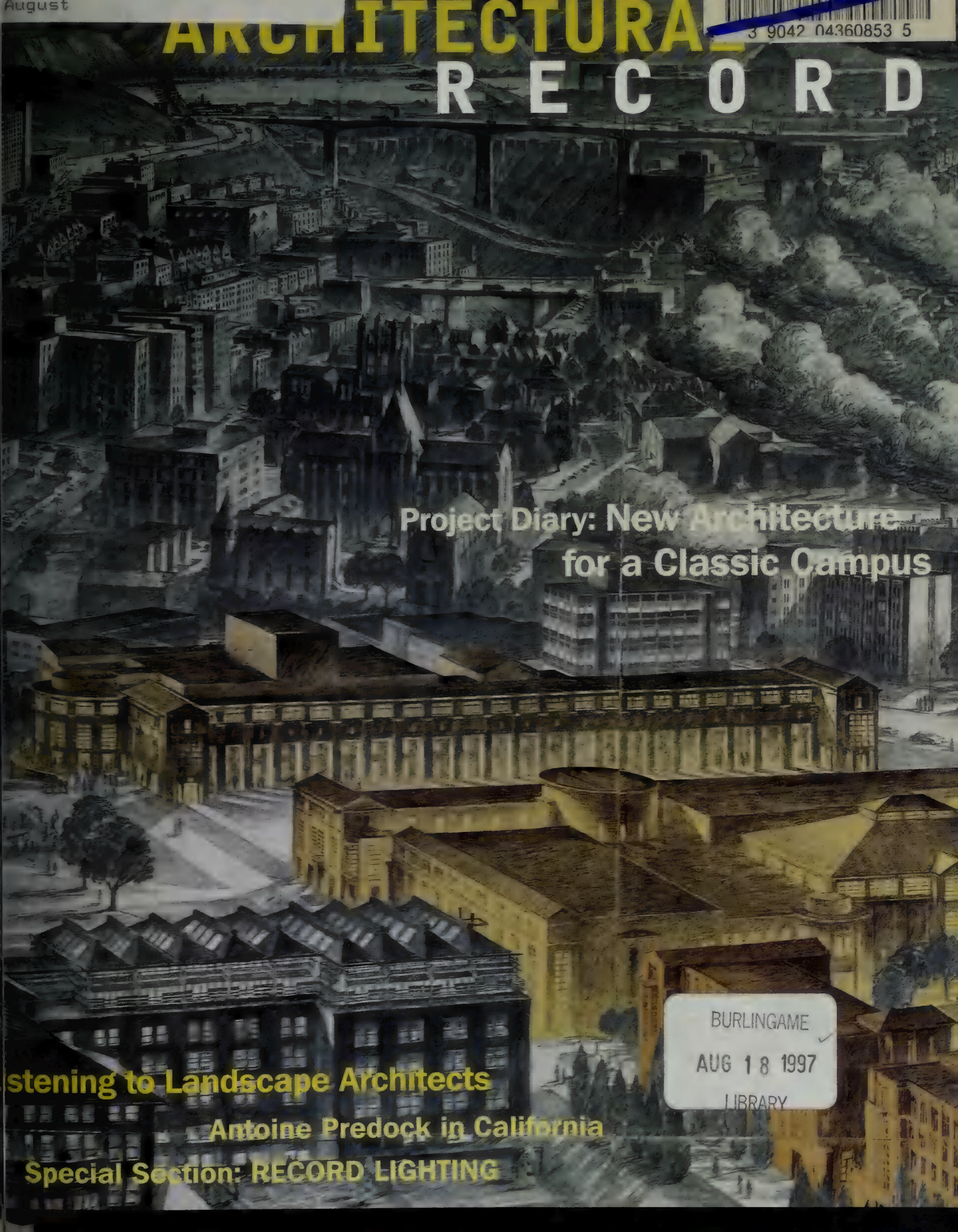
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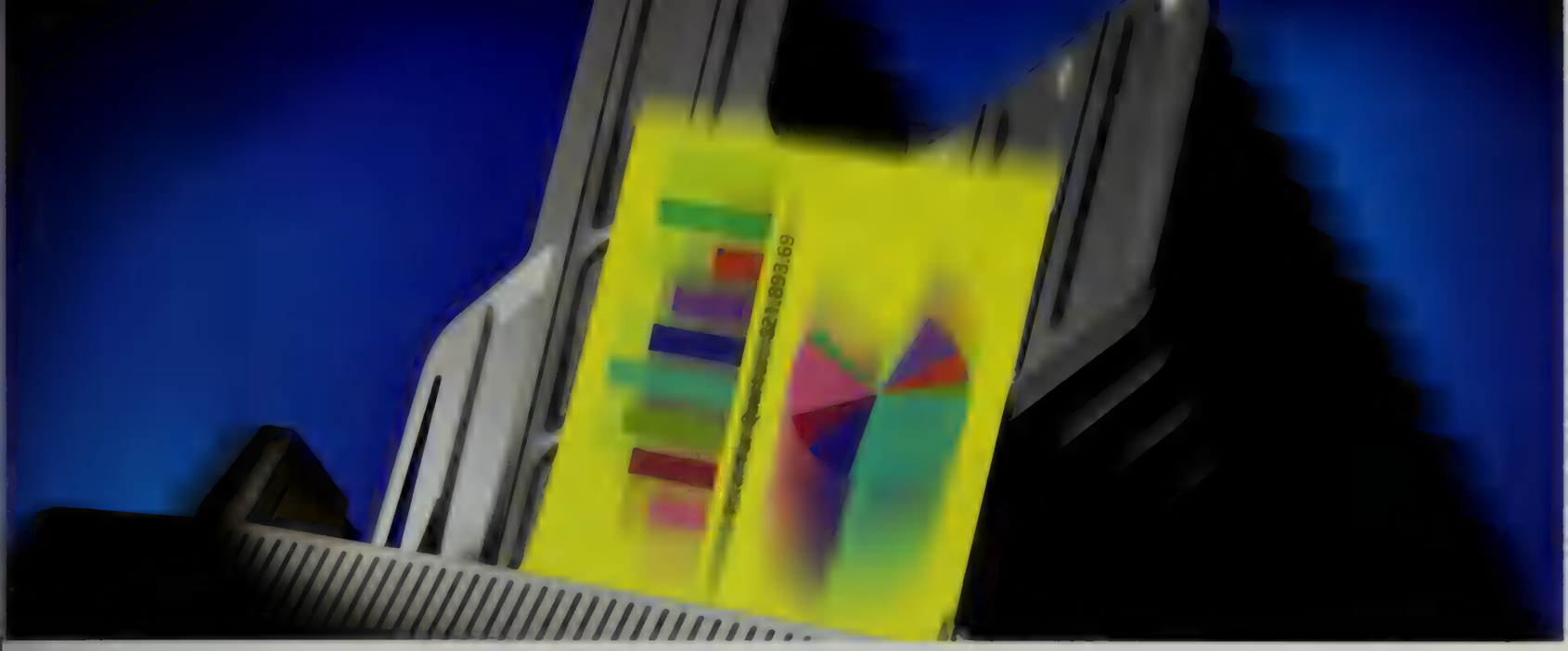
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Dialogue

9 Editorial **12 Letters** **14 Speak Out** **16 Mentors**
20 Pulse **23 Books** **41 Dates/Events**

News

29 Funding of Washington Monument repairs sets trend
34 Modi'in, Israel's newest city, takes shape despite criticism

Features

44 Listening to Landscape Architects
What do they think of architects?

Projects

54 Project Diary: University Center, Carnegie Mellon University, *Pittsburgh, Pa.*
After 12 years, three buildings, and $100 million, a new campus plan extends a university's historic legacy.
UDA/MDA Architects

66 Allen Center for Integrated Systems Extension, Stanford University; Music Center, University of California, Santa Cruz
Projects for two different campuses in California.
Antoine Predock Architect

Building Types Study 752

79 Infrastructure: Designing "Mitigation"
Is ISTEA, which brought design to transportation planning, doomed?
82 Cogeneration Plant, John F. Kennedy Airport, *Jamaica, N.Y.*
The Hillier Group
86 West Point Sewage Treatment Plant, *Seattle, Wash.*
Danadjieva & Koenig Associates
90 Floating Bridge, West India Quay, *London, England*
Future Systems
92 Charlotte Transportation Center, *Charlotte, N.C.*
Gantt Huberman Architects

Lighting

103 Introduction
105 Observations
111 Association of Professional Engineers and Geoscientists of British Columbia Headquarters, *Burnaby, B.C.*
Innovative architecture for image, efficiency, and users' comfort.
Busby and Associates Architects
114 Frans Hals Museum, *Haarlem, the Netherlands*
Museum spaces inspired by the light of a Dutch painter.
Gebr de Jong, Architect; Hollands Licht, Lighting Designer
117 Ohio Statehouse, *Columbus, Ohio*
A capitol building experiences an enlightened revival.
Schooley Caldwell Associates, Architect
123 SONY Disk Manufacturing, *Springfield, Ore.*
Case study of a high-tech lighting challenge.
Boucher Mouchka Larson, Architects
131 Technology: Residential Lighting Control for Every Budget
132 Resources

Technology

139 A/E/C Systems "Nets" Surprises
Networking and the Internet made news at A/E/C Systems.

Products

145 Trade Show Roundup
A look at products introduced at 1997 shows.
152 Product Literature

165 Reader Service Card
174 AIA Continuing Education Self-Report Form
182 Classified Advertising
184 The Future

Continuing Education: *"Case Study: SONY CD Factory Presents a High-Tech Lighting Challenge" (pages 123–28) is this month's continuing education selection.*

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CIRCLE 6 ON INQUIRY CARD



EDITORIAL

Witnessing the Birth of the Cyber Age

BY ROBERT A. IVY, FAIA

Has the moment come? Are the stars colliding and the phone lines sizzling and the electronic foundations shaking—all witnesses to the birth of the architectural cyber age? Fewnativities have been more anticipated or loudly trumpeted. After more than a decade of promotional hype from software and hardware vendors, after false starts and premature purchases by architects and engineers, the moment is arriving, not with a whimper, but a bang.

For architects, the revolution consists of a leap to the third dimension. Our former language was arcane and proprietary and we have loved it fiercely. But even in CAD, two-dimensional drawings demanded abstract, visual symbols best understood by trained experts like you and me. The latest technology shifts our communications to a more quickly and universally understood vocabulary. Wall sections, for example, which architects formerly represented by an aggregation of parallel lines, some straight, some squiggly, will shift in the new medium to almost-tangible objects with appreciable heft and bulk and texture—visual, digital representations of the real world.

At the same time, a building's parts and pieces are becoming integrated into whole systems. Walls, floors, and ceilings, formerly understood as discrete entities, become quantifiable electronic data, capable of being understood in numerous ways: cost analyses, quantities of materials, even specifications can be knitted together, analyzed and extracted on command into subsets of information. Design can flow into construction documents in a seamless evolution.

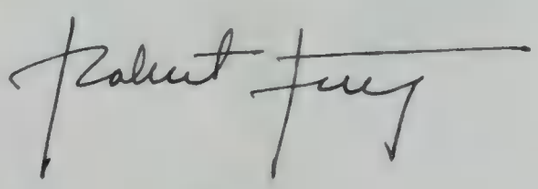
The entire digital enterprise is lubricated by the Internet, which encourages international teams to cluster at project-specific, electronic sites. Clients can access the homepages of architectural firms, touring their work in color, and sometimes in video, without walking outside. Students can tune into an international design competition on a live Webcast.

While scientists began the journey, a new generation of architects, their laptops popped ajar, are leading an exploration into new visual territory. Consider the facts. One firm produces its designs by the San Francisco Bay, zaps the data to Mexico for construction documents, then blasts them eastward toward construction projects in Japan. A Finnish architect, Risto Linturi, creates a virtual, three-dimensional model of Helsinki as an interactive directory to link the public with all city services.

The implications for the profession are immense. A positive effect of this new architectural language and channel of dissemination will be accessibility to a larger audience. How many clients today can read and understand the flat planes of an architectural elevation? Yet everyone should be able to quickly grasp a rendered perspective on the screen.

Architecture is attractive, not only to architects, but to artists, to contractors, and to businesspeople. If the new tools are so easily understood, design will be tested by nonprofessionals. While the initial reaction of architects may be fear of encroachment into sacred territory, new voices and new fingertips may spread the story of this engaging enterprise globally, ultimately heightening public consciousness of architecture's worth and elevating the status of those who devote their professional lives to it. Moreover, architects should discover an unimaginable wealth of opportunity for their creative skills.

It is as if we had been given an unanticipated gift. We still may need our pencils; we still may need to sacrifice our fingertips to the mat knife. But time and technology are delivering something new, something alien, something wailing to be picked up and handled. It's a birth, make no mistake about it, and if we don't embrace this child, someone else will.



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CIRCLE 7 ON INQUIRY CARD

LETTERS

New Orleans: Modern matters

I found your recent coverage of New Orleans ["Crescent City on the Edge," May 1997, pages 136–42] both puzzling and disappointing. The illustrations used to document the city's architectural heritage and its urban fabric ignores the repetitive nature of much of the housing stock. More disturbing was your exclusive reliance on the opinion of Errol Barron Jr., FAIA, and the related "new" work to represent contemporary architectural culture in New Orleans. Barron states: "It's extremely difficult to compete with the 19th-century architecture here because it is so good. You either ignore it and do something Modern or acknowledge it and do something that's not as good." The paucity of ideas and aspirations that this statement reveals may be typical of the New Orleans architectural establishment, but it does not reflect the efforts of at least some architects working in the city today.

—Mark Shapiro, Department Head
School of Architecture, Kansas State University

A title earned

While Deryl McKissack should be congratulated for being named Small Business Person of the Year [June 1997, page 36], it is inappropriate to refer to her as an architect. You stated that she has a degree in civil engineering and training in architecture.

I often find that titles like architect and engineer are used loosely in architectural and engineering journals. Such titles should be given to those of us who have earned the title by vigorously pursuing our profession.

[illegible]

1997, pages 124–30] and was shocked by "Challenge 2: Putting an End to Apartheid."

Students should be accepted into college programs based solely on their academic capabilities, regardless of race, gender, ethnic group, or sexual orientation. Accepting less qualified individuals for the sole purpose of meeting quotas, in my view, is ridiculous. Are schools rejecting outstanding applicants because the quotas have been met?

By no means am I prejudiced, but I am a firm believer in rewards being handed out for accomplishments. Unless the American architectural establishment rids itself of these preconceptions about so-called minorities, we cannot progress toward equality. How can we all be equal if we continue to label others as minorities? It shows great disrespect to foreigners (or those born of non-U.S. parents). Do citizens of other nations refer to outsiders as minorities?

—Patrizia Cimino
New York City

By using "soul" in the title of his story on architectural education, Mitgang suggests that his article discusses the essence of the profession and its education. But the soul of architecture is found in issues that are deeper than computers or teachers.

Soul is generated from the deeper idea of placemaking. It is about training young architects to formulate visions of place for our evolving communities; the health of communities is linked directly to the spaces we create and inhabit. Mitgang's concluding statement that "the spirit of competent service to communities must define the soul of architecture" is the key to saving the soul of a struggling profession.

In order to learn placemaking, students must be taught to understand the concept of community. I [illegible] to the notion of service-learning studios.

[illegible]

The issues raised in Lee Mitgang's article are among the most disturbing signs of what is wrong and outdated in society today. We should not be looking only at the design studio and the faculty, but should admit to ourselves that racism, sexism, and elitism still exist in our society and, therefore, in our architecture schools. In the classroom, students are rarely taught to relate to the "real world."

During my first two years as an architecture student in a five-year program, I have had the opportunity to meet students who refuse to acknowledge that there are people living in poverty, that homelessness still exists, or that the history and culture of other nations are relevant to them. The courses taught at my university focus on Western history and philosophy.

There is a rigidity and a monotony in architectural education, with every student leaving the program identical in thought and process. I believe it is the responsibility of everyone, including students, teachers, parents, and professionals, to improve the educational environment as we move toward the 21st century.

—Helen Mui
New York City

Respecting what is in place

The new amphitheater and outdoor cinema at the North Carolina Museum of Art [June 1997, pages 120–29] represent the very worst of what is happening in design today. Offensive enough in themselves, they do not relate in any meaningful way to the museum, nor apparently did the [design] team want them to.

Edward Durell Stone's 1960s NCMA building, which the writer describes as an "almost undifferentiated stone mass," is in fact a brick and concrete structure of surprising subtlety on the exterior and contains a wonderful variety of spaces, many with dramatic natural light, on the interior. It remains in good condition after 30-plus years. When architects are chosen to produce master plans and/or additions to existing structures, especially those representing community commitment, they should be asked if they intend to produce work that respects what is already in place.

—J. West, AIA
West and Conyers, Sarasota, Fla.

AIA and TV advertising

"AIA Delegates 'Shoot Down' Dues Hike and TV Advertising Campaign" [June 1997, page 33] misrepresented the viewpoints of the American Institute of Architects, California Council [AIACC].

The AIACC supports the concept of the national AIA's proposed TV advertising campaign, but not at this time. Roberta Jorgensen, AIA, AIACC's president, spoke directly to the proposed assessment of $50 to fund the campaign at the AIA national convention. Our principal argument against the assessment was, and is, based on timing. Right now, our membership is faced with one of the most far-reaching, detrimental state ballot initiatives to date. The "Competition Killer Initiative" is our number-one priority, and we are directing all our energy and our limited financial resources to fight it.

—Paul Welch Jr., Hon. AIA
Executive Vice President, AIACC
Sacramento, Calif.

Corrections

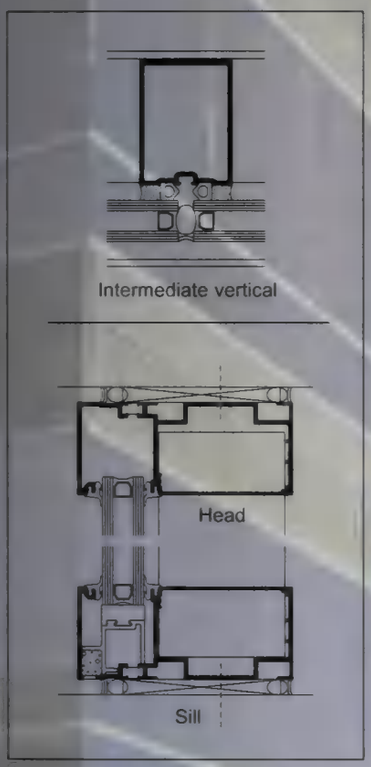
In the June 1997 issue, one of the winners of the computer delineation awards was incorrectly credited. "Save a Connie Air Museum" [pages 63, 65] was delineated by Aaron K. Zimmerman of WRS Architects, Kansas City, Mo.

A digital illustration of the Lujiazui/Itochu Building in Shanghai, China, by Nicholas Buccalo, AIA, of The Drawing Studio [June 1997, page 44] was misidentified as a photograph.

The architect of the Root House [May 1997, page 84] is William Morgan, FAIA, not Pasanella+Klein Stolzman+Berg, who are responsible for the interior design.

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CIRCLE 8 ON INQUIRY CARD

SPEAK OUT Post-occupancy evaluations: "They show us what works and what doesn't."



—BY HERBERT McLAUGHLIN

Herbert McLaughlin is director of design at Kaplan McLaughlin Diaz, a 200-person, San Francisco–based architecture and planning firm. Since its founding in 1963, the firm has conducted more than 30 research/POE projects in health, housing, courts, and correctional design.

Nearly everyone agrees that post-occupancy evaluations (POEs) are immensely valuable. They help architects to improve their designs and can be cited in job interviews to show prospective clients how responsive a firm is to the needs of a project's users. They benefit the public by contributing to a pool of research on architecture and building types. Simply put, they show us what works and what doesn't.

So why are they so seldom done?

Exactly 23 years ago, I wrote an article for this magazine, outlining my experiences with POEs. I explained how and why my firm did them. Since then, little has changed. The need for POEs is still great and the number of firms doing them or doing them on a regular basis is still quite small. I am the first to admit that my firm doesn't do POEs nearly as often as we should.

Private-sector clients routinely do POEs, although they aren't always identified as such or structured in a formal way. Every housing, commercial, and retail developer I know constantly assesses previous projects and looks at the marketplace to see what works—in other words, what sells.

On the other hand, clients for "compulsory" buildings (jails, public housing, and until recently, even hospitals) rarely feel the need to [illegible] POEs. That's a shame, [illegible] these are often exactly [illegible] that could most use [illegible] and knowledge [illegible] in a POE.

Why don't more architects do POEs? One reason is that they're perceived as being complicated and expensive. They need not be. The typical POE done by Kaplan McLaughlin Diaz requires between 150 and 300 hours of work and involves primarily our own staff. Most teams include at least one architect, a social scientist, and an experienced client or user from an institution other than the one being studied. While it is more "correct" to have a team of outsiders unaffiliated with any of the parties involved in the project, we like to include people from our staff because they benefit immensely from participating in POEs.

Recently we conducted a POE of a single-room-occupancy hotel that we designed in the Tenderloin district of San Francisco. The evaluation began six months after the first residents moved in and involved five components: written surveys of both the residents and the staff; two community meetings with residents; individual interviews and group meetings with the staff; a walking tour of the neighborhood with residents and staff; and a comparison with a neighboring "control" SRO.

Over the years, we've discovered that lessons learned from one project can help us even with different kinds of buildings. For example, studies we conducted of housing for the elderly have been applicable to the design of successful environments for the homeless, the mentally ill, and the incarcerated.

We fund most POEs from the firm's research program, which has an annual budget of a few thousand dollars. Occasionally we fund a POE from our sabbatical program, which offers KMD staff five weeks off every five years to work on independent projects somehow related to architecture. In many instances, clients foot the bill for post-occupancy studies.

Of course, POEs sometimes expose flaws in a firm's design—an intolerable thought for architects with *Fountainhead*-inflated egos. But learning should be part of the design process. As for all those in the profession concerned about liability, let them rest assured. Our lawyers have told us that uncovering information that indicates a better functional solution might have been achieved is not actionable—at least not yet.

In 1974 I wrote in these pages, "The successful use of evaluation requires that we see design with new eyes." This is still true today. By looking at our projects through the eyes of the people who live and work in them, or through the eyes of neighbors or social scientists, we can design better buildings. POEs are one way of doing this. ■

Contributions: *If you would like to express your opinion in this column, send submissions by mail (with a disk, if possible) to Speak Out, Architectural Record, 1221 Avenue of the Americas, New York, N.Y. 10020; fax 212/512-4256; or E-mail rivy@mcgraw-hill.com. Essays must not exceed 700 words. The editors reserve the right to edit for space and clarity. Where substantial editing occurs, the author will receive final text approval.*

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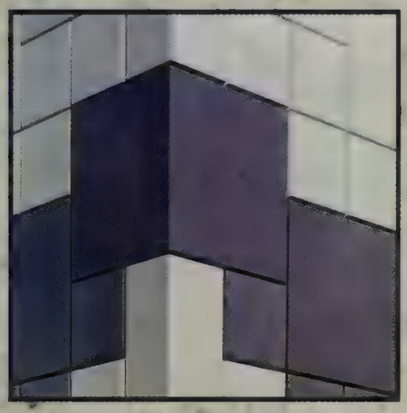
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CIRCLE 9 ON INQUIRY CARD

MENTORS Advice for entering the digital arena, and recommendations for working in affordable housing.

Randolph C. Marks, a longtime digital explorer, is the principal of Architectura, a firm specializing in historic preservation and residential design in Birmingham, Ala. His E-mail address is architectura@mindspring.com.





John Sheehan, Brad Burke, and Eric Naslund, AIA, are part of Studio E, a 10-person architectural firm in San Diego working primarily in affordable housing.

I have a ten-person firm in the Northeast and have been using CAD as a drafting tool. We are interested in organizing the company to take advantage of electronic media in other ways. What should we do to prepare to step into this arena?
—unsigned

Randolph C. Marks responds: The "arena" as I understand the question is the "communicative universe of digital media" that is continuously emerging for application by architects, their clients, contractors, and other providers of services for the building professions. The "larger step" is more akin to a willingness to undergo a baptismal immersion.

The first step requires a new commitment in order to enter this changing universe, which involves all members of the firm participating in the rethinking of a historically founded process. Everyone in the firm must be willing to share this information and act on it. Eventually, you may even wish to construct your own project-specific Intranet.

As primers or guides to the new arena I recommend two books written by MIT professors to expose the reader to the universe of ideas and possibilities encapsulated within the digital cloud. The first, *Being Digital* (Alfred A. Knopf, 1995), by Nicholas Negroponte, is an easy read and should be considered a starting board for further reading. The second primer, *City of Bits: Space, Place, and the Infobahn* (MIT Press, 1995), by William J. Mitchell, FAIA, will help you enter the new digital realm and learn the new light-houses of the digital age. For this new journey you will need to acquire and learn unfamiliar but necessary charts and operate new navigational equipment. You must also exercise your will to explore. I suggest you find magazines and Web sites that represent the digital age on the Web.

On rare occasions in history the rapid constellation of ideas accompanied by the availability of technology has resulted in a swift revolution as opposed to slow evolutionary change. Rather than being threatened, we are challenged to find our own way.

Since the Federal government has all but pulled out of the business, how can architects make a living providing low-income housing? Is this a feasible area of architectural practice in 1997?
—unsigned

Eric Naslund, AIA, Brad Burke, and John Sheehan respond: While the days of extensive Federal intervention in the housing arena are certainly behind us, the good news is that quality affordable housing is still being built. The process is now a more local one and includes a wide variety of funding sources, including the Federal government by way of tax credits. Projects and budgets are smaller, resulting in a more gentle integrating of affordable units into existing communities. For small- to medium-size local firms, this means that affordable housing design is an intense and relational process with sometimes long waits between design and construction phases due to the idiosyncrasies of funding. All too often projects never proceed past conceptual design.

Here in California, the groups building affordable housing fall into three categories: nonprofit housing developers, local municipalities or redevelopment agencies, and private developers satisfying inclusionary requirements. While many of these entities have extensive development experience, others may not. Architects should therefore be knowledgeable about the funding and development processes of affordable housing. These are quite different from the market-rate environment and have direct impact on design. For example, specific unit sizes and mix are required to secure certain types of funding.

As in most areas of practice, getting into affordable housing can be difficult because of the value placed on past experience. More than in any other housing market, long-term success must come from the quality of the ideas generated between architect and client. Affordable housing providers are generally motivated by a strong vision to make dignified housing that enriches people's lives, a vision that can provide tremendous design opportunities. ■

Questions: *If you have a question about your career, professional ethics, the law, or any other facet of architecture, design, and construction, send submissions by mail to Mentors, Architectural Record, 1221 Avenue of the Americas, New York, N.Y. 10020; by fax to 212/512-4256; or by E-mail to rivy@mcgraw-hill.com. Submissions may be edited for space and clarity.*



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CIRCLE 10 ON INQUIRY CARD

PULSE RECORD readers were asked: Should the Gold Medal and other awards be broadened to include collaborators?

YES: 50%

Yes: When it was set up in 1906 by Charles McKim, the Gold Medal was intended to recognize and create a record of outstanding contributions to architecture. It was focused on individuals, but McKim never ruled out group awards. In my view, the individual Gold Medals awarded to Louis Skidmore and Nat Owings were silly: clearly it was the firm and not the individuals who earned the medal.

There are many partnerships of talented people who do such superb work and make such important contributions in design, education, writing, and so on that they should be recognized. What will the record of the Gold Medal look like if it ignores talents like Robert Venturi and Denise Scott Brown?
—Richard Guy Wilson, Hon. AIA
Chair, Department of Architectural History, University of Virginia

Yes: There is no question that the AIA Gold Medal should be presented to the entire team of collaborators. The historical view of the architect-hero romanticized by the media—the supreme master of all trades involved in the building process—is no longer accurate.

The "spirit of the individual" usually lies in a simple, unworkable sketch which is handed to the design team by the architect of record. Frequently the original massing and layout of the plan evolves into something entirely different from the initial concept.

To perpetuate the myth of the hero-architect is to contribute to the profession's demise; it is also a factor in the low compensation paid to architects. As long as the design team receives little or no credit, those who turn the dream into reality have a limited opportunity to capitalize on their efforts.

It is interesting to note that it is usually the hero-architects who demand from their employees the most work for the least pay, hiding behind labor laws in the process. The AIA, as the organization that supposedly represents the entire profession, should no longer be party to this injustice.
—Joseph Di Monda, AIA
Attorney at Law/Architect
Manhattan Beach, Calif.

Yes: In larger offices, say Richard Meier's, the actual design is worked out by young architects with the principal as decision-maker. To anyone with experience working in an architectural office, this is a well-known practice.
—Tom Killian, Architect
New York City

NO: 50%

No: The AIA Gold Medal and other awards slated for individuals should not be broadened to include collaborators. Collaboration has no doubt spurred architectural mastery worthy of recognition, but the AIA's awarding the results of such work should be reserved for the individual designer. This person is the one who bears the *soul* responsibility for design efforts and decisions for the project. The Gold Medal may become alloyed if it is allowed to relinquish its attention, not to mention its mission, to the individual.
—Miles Battle
Washington, D.C.

No: Architects may have many collaborators, but the awards are for individual artistic achievement.
—Laszlo Papp, FAIA
White Plains, N.Y.

This Month's Question:

Is there a place for high design in affordable housing?

Architects are investing affordable housing with real design attention, often to the point that it is impossible to distinguish "affordable" from "upscale." The July issue featured housing developments with towers, strong colors, and outdoor living spaces. Yet in Chicago, many tenants of the notorious Cabrini-Green housing complex, currently being redeveloped, fear gentrification of their community.

Is there a place for high design in affordable housing?
☐ Yes ☐ No

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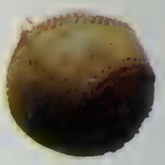
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CIRCLE 13 ON INQUIRY CARD

BOOKS: Compared to art and architecture publishing, the landscape version is nearly invisible. It has no Rizzoli to celebrate its heroes.

BY DAVID DILLON

Contributing editor David Dillon is the architecture critic for the Dallas Morning News *and a former Loeb Fellow at Harvard's Graduate School of Design. His books on Texas architect O'Neil Ford and the FDR Memorial in Washington will be published next spring. He is also the author of the new plan for Washington, D.C., "Extending the Legacy."*

Paradise Transformed: The Private Garden for the Twenty-First Century, *by Guy Cooper and Gordon Taylor. New York: Monacelli Press, 1996, 208 pages, $60.*

Taking Measures Across the American Landscape, *by James Corner and Alex S. MacLean. New Haven: Yale University Press, 1996, 208 pages, $45.*

Invented Cities: The Creation of Landscape in Nineteenth-Century New York and Boston, *by Mona Domosh. New Haven: Yale University Press, 1996, 185 pages, $30.*

The Cultivated Wilderness: Or, What is Landscape? *by Paul Shepheard. Cambridge: MIT Press, 1997, 230 pages, $13 (paperback).*

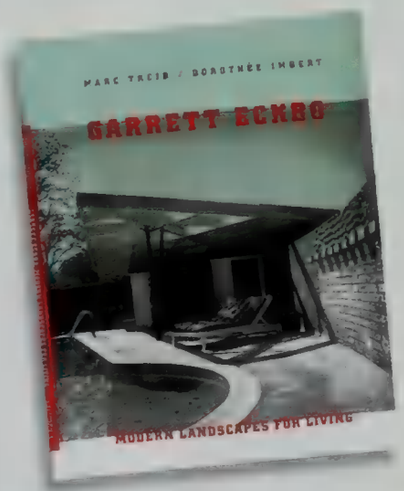
Garrett Eckbo: Modern Landscapes for Living, *by Marc Treib and Dorothee Imbert. Berkeley: University of California Press, 1997, 193 pages, $40.*

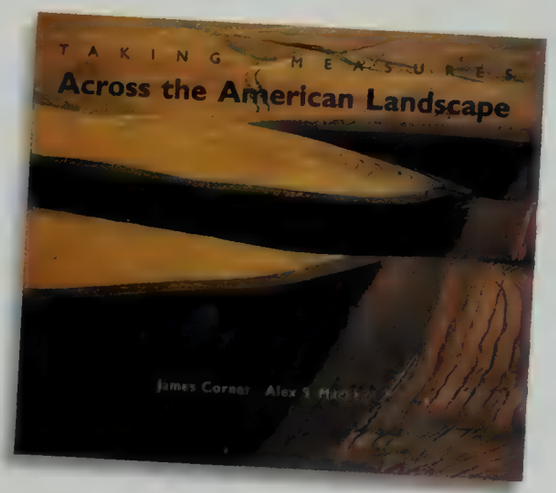
Walk into your local megabookstore—a Borders, Barnes and Noble, or other literacy au lait emporium—and chances are you'll find a substantial section on architecture. Histories of architecture, biographies of prominent architects, theoretical tomes, monographs on major buildings and leading firms, along with slender volumes on aspiring young designers with only three projects to their credit but a sure grip on the self-promotion tiller.

And if it's a true megastore—and you're very persistent—you may also find a shelf of books on landscape architecture, probably down low so that you have to squat to read the titles. Most will deal with plants and gardening, and be filled with helpful tips on growing begonias and building a rot-proof planter. You'll find no comprehensive histories of the profession. Biographies of major landscape architects, other than Frederick Law Olmsted, will likewise be scarce, as will narratives of leading firms and thoughtful commentaries on current theory and practice.

Compared to art and architecture publishing, the landscape version is virtually invisible. The profession has no Rizzoli or Harry N. Abrams to celebrate its heroes and tout its successes. Much of the best writing on landscape architecture appears on the fringes, in books on planning, urban design, and natural history. Landscape architects themselves have only the shakiest grasp of their own history, and of the relationships between what they do and the broader culture.

A splendid opportunity for enterprising publishers, one would think, but so far few have stepped forward. One is Spacemaker Press in Washington, D.C., a fledgling venture of James Trulove and architect Peter Walker that will publish 10 books on American landscape architecture this year and a dozen or more next. These will range from corporate histories to studies of individual landscape architects and brief monographs on major landmarks. Clearly a step in the right direction, but no substitute for the broad commitment to history and





criticism that architects can take for granted.

All of which contributes to the patchwork character of landscape literature, of which the books reviewed here offer a representative if unscientific sample.



Taking flight

Every would-be metropolis with a runway and a few unemployed pilots is producing an aerial photography book. But none soars like *Taking Measures Across the American Landscape*. Not only are Alex MacLean's images provocative and memorable, they are accompanied by insightful commentary and map drawings by James Corner and Denis Cosgrove that reveal the American landscape to be a palimpsest of human interventions, good and bad, rather than a collection of dramatic spaces and picturesque views. We look down on rivers, farms, and tablelands, the indelible record of our actions on the earth. If J. B. Jackson's essays were transferred to film, this is what they would look like.

Paradise Transformed: The Private Garden for the Twenty-First Century is one of those glossy coffee-table books that are easy to read and difficult to take seriously. Authors Guy Cooper and Gordon Taylor selected 50 projects by 25 American and European designers to document the diversity of the private garden on the eve of the millennium. The photography is handsome, the range of examples impressive—from Ian Hamilton Finlay's Neoclassical folly in Scotland to Martha Schwartz's bagel garden in Boston—but the writing is trite and the critical judgments commonplace. Instead of a framing essay, let's say, on the place and function of the private garden today, when the entire public realm is being privatized, the authors settle for surface descriptions and easy generalizations. Their critical categories—exploration, innovation, tradition, abstraction—are particularly vague and unconvincing, with many projects falling easily into two or three. The book's lush superficiality, and hefty price, may confirm the public's suspicion that landscape architecture is just shrubbing up for rich folks, even though many of the gardens presented say otherwise.

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CIRCLE 14 ON INQUIRY CARD

Mona Domosh's *Invented Cities* combines solid urban history with the repetitiveness of an undergraduate term paper. Her thesis is that the urban landscapes of Boston and New York reflect the values of their elites far more than the imperatives of economics, geography, and technology. Boston's elite was small, inbred, and more inclined to husband its wealth than risk it in speculative investments. This led to an orderly, low-scale city with significant public spaces—Boston Common, Public Garden, Olmsted's Emerald Necklace—and an enviable range of philanthropic and cultural institutions. New York's more commercially aggressive elite, fragmented by wave after wave of immigration, opted for risk and produced a landscape of skyscrapers and broad shopping streets with few civic spaces.

Domosh's thesis is not particularly original, but she marshals enough data and compelling drawings and photographs to create an intriguing alternative argument for the origins of urban form. Still, even at 180 pages it would have been twice as good at half the length.

Paul Shepheard's *Cultivated Wilderness: Or, What is Landscape?* is discursive, anecdotal, quirky, and altogether unclassifiable. In discussing the idea of wilderness—meaning both the landscape before man arrived and the wild places that remain despite our efforts to eradicate them—he visits glaciers, cathedrals, and parks, observes dogs and fish, and engages in discourses on the wonders of the Hubble Space Telescope.

Shepheard is a keen observer and for the most part a felicitous writer who manages to uncover large truths in simple things, the largest being that our survival depends on recognizing and cherishing the bits of wildness in the world and in ourselves. At the same time, his writing is afflicted with a Jamesean sense of nuance that occasionally suggests that more is going on in a page or a paragraph than really is. Rather than a sustained argument, *Cultivated Wilderness* presents a series of discrete observations that should be savored, as if they were part of an old-fashioned commonplace book.

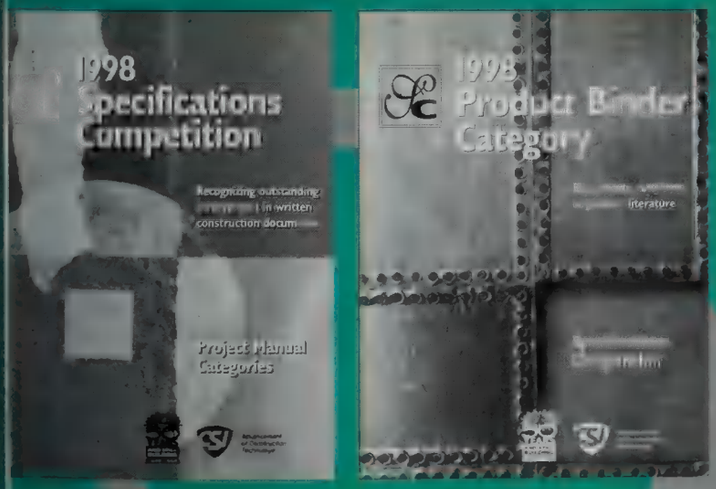
Sticking to his principles

Garrett Eckbo: Modern Landscapes for Living was written to accompany a recent exhibition of his work at the University of California at Berkeley, and is therefore part catalog and part biography. In the first half, Marc Treib provides a concise introduction to Eckbo's career, covering not only his celebrated gardens for the rich and famous in L.A. but his defense housing and migrant worker camps for the Farm Security Administration. (Historian Dorothee Imbert discusses these social designs in the second half of the book.) Even in his theatrical, Beverly Hills phase, Eckbo never lost sight of the big picture. He was drawn to Modernism because it had a social agenda and never abandoned his humanistic principles.

As an introduction to Eckbo's work, Treib's book is more solid than provocative. All the major projects are represented, including the Cole garden and pool in Beverly Hills, with its cantilevered diving pads, and the aluminum Forecast Garden for ALCOA. What's surprising is that a major book on Eckbo has taken so long to appear. A pioneer Modernist, the E in EDAW, the world's largest landscape architecture firm, is now 86 years old and very much in the shadows of professional awareness. The same is true of his Harvard classmate James Rose, about whom little has been written, and Dan Kiley, whose immense contributions to the profession have yet to receive the scholarly attention they deserve. The publication of Treib's book, though welcome, also reveals how much historical and critical ground landscape architecture has to make up. ■

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CIRCLE 15 ON INQUIRY CARD

WHEN IT CAME TO RENOVATING THIS HISTORIC COURTHOUSE, EVEN THE



In 1964, The Parker County Courthouse in Weatherford, Texas was designated a Texas Historic Landmark. And thus began the slow, methodical process of restoring it. First to receive attention was the structure's limestone stonework. Later, the roof was replaced. Then came the windows, which proved to be one of the most challenging aspects of the project.

The Historical Survey Committee mandates that if nothing remains of a historic building's original windows, the new ones must be faithful reproductions, right down to the last deta Since the courthouse's original wood windows had been replaced by aluminum ones some years back, that meant that all 105 of the new windows had to be virtually identical to those made and installed over a century ago.



Bids were sought, but only two manufacturers felt qualified to respond. One of them, Marvin Windows & Doors, had actually been recommended by a company that was asked to bid but declined.

Though underbid by the other finalist, Marvin's figures were based on building the largest windows with structural muntin bars to withstand the winds that buffeted the building's hilltop site. Intrigued, asked each company to build a sample window. One look and the job was immediately awarded to Marvin.

several weeks, Marvin's architectural department busied past. Working from turn-of-the-century photographs

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he courthouse and measurements of th actual openings, they designed the r ind tops, double hungs, circles and c eckrail units that play such an integral role in the b lding's design. As for the largest of them, not only were th y built to withstand the high wind requirements, Marvin d ivered them factory-mulled to further simplify installation.

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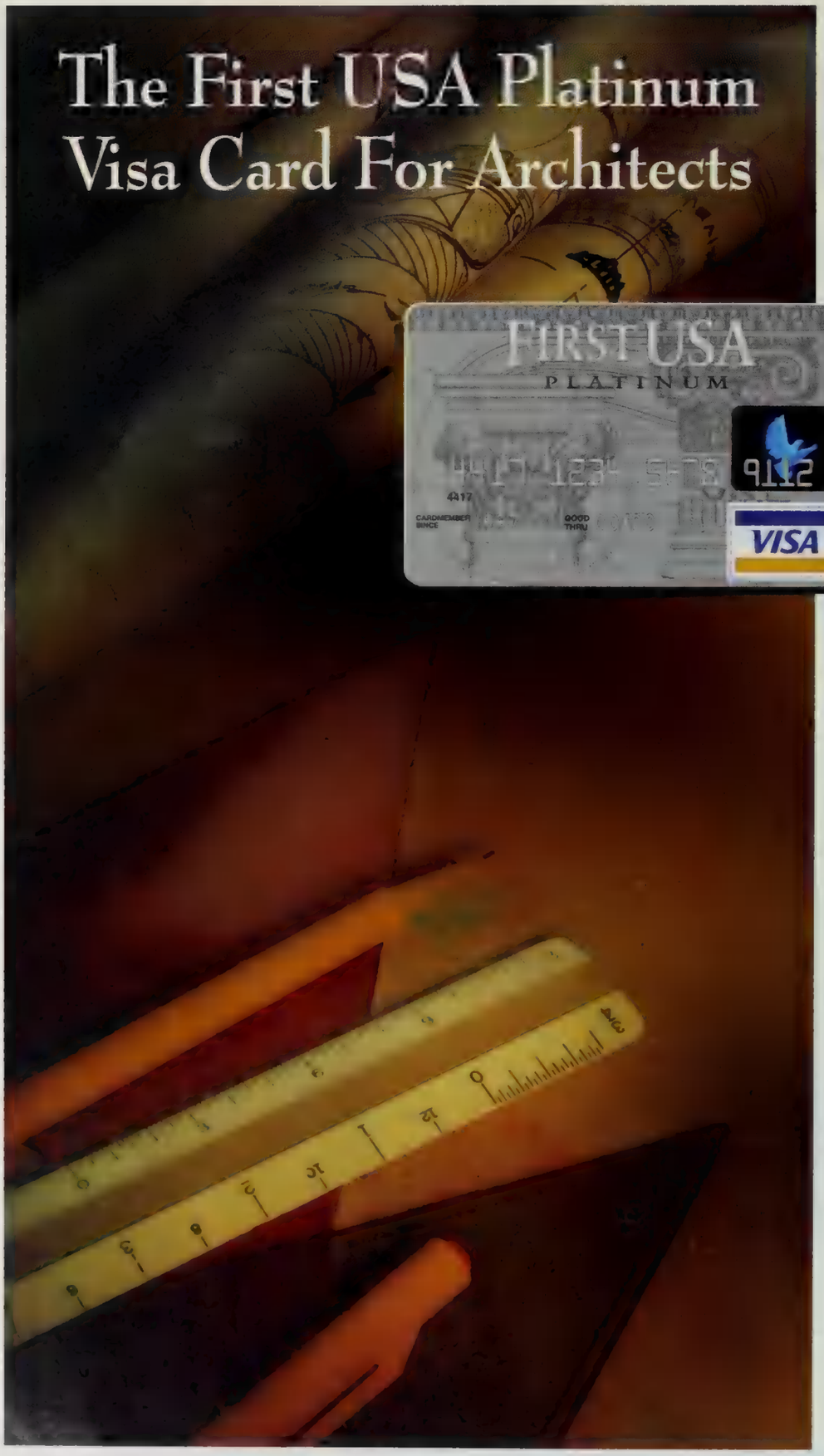
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CIRCLE 17 ON INQUIRY CARD

FUNDING OF WASHINGTON MONUMENT REPAIRS SETS TREND

Renovation of the Washington Monument is being funded by a private corporation, setting a precedent in public-private partnerships on federal projects that administration officials hope will become a trend. If the partnership is successful, it will mean that in the future architects will receive fewer commissions from the government and more from private corporations.

Minneapolis-based discount retailer Target Stores raised the $5 million needed for the repair work by first announcing a partnership with the National Park Foundation and guaranteeing $1 million for the project. The balance was solicited from Kodak, 3M, Procter & Gamble, Visa USA, Coca-Cola, and Discovery Communications.



"Target Stores' commitment is an outstanding example of public-private partnership that will help us better serve the visitors to all of America's national parks," said Bruce Babbitt, secretary of the interior. According to Babbitt's press office, as federal funds for these types of projects wane, the private sector will take up the slack.

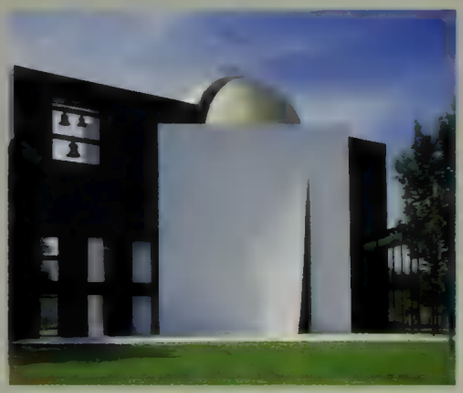
Target has already commissioned architect Michael Graves to design the scaffolding. He intends to preserve the monument's stature and beauty even as the restoration by the National Park Service and the U.S. Department of the Interior proceeds.

Aging and weathering, combined with the mechanical challenges of heating and cooling the memorial while accommodating 2,500 visitors a day, have resulted in the need for major repair work. The project includes surveying the condition of and repairing the structure's stones, repointing exterior and interior joints, and replacing elevators and HVAC equipment.

The scaffolding needed to repair the stonework will be among the tallest in the history of federal projects, surpassing that required for the Statue of Liberty, another famous public-private (Chrysler Corp.) partnership. Graves says he would draw on historic designs for inspiration, including the scaffolding used to raise ancient Egyptian obelisks, as well as that depicted in the etchings of Italian artist Piranesi.

Says Graves: "That which covers it up has to be equal to what is covered." *Ellen Sands*

JOHNSON CHAPEL



Philip Johnson's $6 million Chapel of St. Basil completes the Jeffersonian quadrangle at the University of St. Thomas, a private Catholic school for which Johnson devised the master plan.

Chapel construction began in 1996 after an extended fund-raising period. In contrast to the brick boxes and steel arcades of the quadrangle, the 7,000-sq-ft chapel is pure geometric forms. A gold-leafed hemisphere sits atop a white cube, both of which are sliced at an acute angle by a black plane.

The front wall of the cube is pulled open like the flap of a tent, recalling ancient sanctuaries. Only daylight illuminates the 230-seat interior, entering from the sliced dome and through skylights over the shallow altar apse and above a niche for a statue of the Virgin and Child.

A cross-shaped window on the west wall is the most dramatic feature of the interior. As the sun moves outside, the image of the cross moves around the interior, representing Christ's journey to crucifixion.

Below the window are the Stations of the Cross cast in shallow reverse relief. Above the altar is a 14th-century statue of Christ donated by Dominique de Menil, the arts patron who first brought Johnson to Houston in 1948 to design her house. ***Gerald Moorhead***

CHURCH IN THE LURCH AFTER U.S. SUPREME COURT RULING

Churches are subject to the same ordinances as other buildings when it comes to historic preservation, according to a U.S. Supreme Court ruling made earlier this summer.

The case, City of Boerne v. Flores, concerns St. Peter, a 74-year-old Catholic church in Boerne, Texas, near San Antonio. The parish was outgrowing St. Peter's 230-person capacity. So Archbishop Patrick Flores, who presides over the archdiocese, gave permission to expand the building.

But the city's historic landmark commission decreed that the church is part of a historic district and cannot be added onto.

Archbishop Flores sued, citing the 1993 Religious Freedom Restoration Act (RFRA). The law says that governments cannot "burden" religious organizations without compelling justification. U.S. District Court ruled against the archbishop, but an appeals court reversed the district court. The archdiocese then appealed to the Supreme Court.

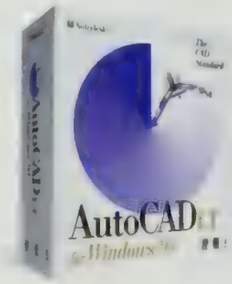
Writing of the high court's 6 to 3 ruling, associate justice Anthony Kennedy said, "Broad as the power of Congress is . . . RFRA contradicts vital principles necessary to maintain separation of powers and the federal balance."

Though the ruling centers on general constitutional issues, it gives historic preservation a significant boost. "With respect to historic designation and other land-use controls, religious properties stand on the same footing as other properties," said Edward Norton, a vice president at the National Trust for Historic Preservation.

The fate of the renovation remains up in the air. "We're back in court," said Thomas Drought, the archdiocese's attorney. This time, the church is citing the First and Fifth Amendments as grounds for its case. *Tom Ichniowski*

"Out here nature moves at a slow pace, but not us. Converting an entire building took under a month."

--Michael Rivetts, engineering technician, Cape Cod National Seashore





To get a job done fast, sometimes you just can't wait for the experts back at the home office. Sometimes you need to take matters into your own hands. That's what the Maintenance Division of Cape Cod National Seashore did when they decided to use AutoCAD LT® for Windows 95® to quickly turn a nearby, 50-year old Air Force building into a modern biology research facility. "Rather than waiting for the National Park Service Boston Architecture and Engineering office to get to our projects, we decided to implement AutoCAD LT. That way we could tackle some of the design projects we had in the queue ourselves," says Michael Rivetts, an engineering technician with the Maintenance Division. Prior to installing AutoCAD LT on a Pentium®-based PC, the Maintenance Division toyed with another low-cost CAD system. Big disappointment. With its limited feature set, inefficient toolbar setup, and plotting and printing problems, no one found it satisfactory. Worse, they couldn't exchange design files with other parks service offices because this product didn't offer DWG file format compatibility with AutoCAD,® the park service's design tool standard. Said Rivetts, "AutoCAD LT was extremely attractive to us because of its cost-effectiveness and the fact that it's so easy to use and fully compatible with AutoCAD.



We hoped that by installing the application we'd be able to complete more projects internally, which is precisely what happened." On this job, Rivetts simply obtained a hard copy of the original building floor plan, which he re-drew in AutoCAD LT. He and his colleagues then rearranged interior walls to indicate laboratory boundaries and office sites. With the help of Autodesk's Symbols Library, things like work tables, sinks, and bathrooms were quickly added. National Park Service biologists will soon be using the new 5,800 square foot facility to examine natural resources, dune migration, and water quality. And many other abandoned buildings are also being redesigned for modern park and government use.

AutoCAD LT is available for $489 at most software retailers. For information call 1-800-228-3601, ext. A146 or visit www.autodesk.com.

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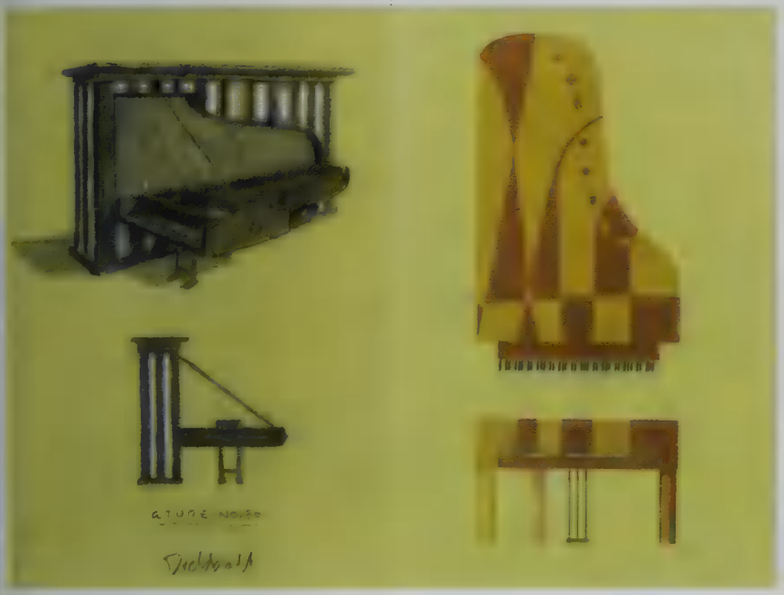
ARCHITECT-DESIGNED PIANOS COME IN SURPRISING SHAPES AND SIZES

Architect John Diebboll, a senior associate of Michael Graves, has designed an African city, the 18th hole of a miniature golf course, and the usual repertoire of schools, museums, banks, shopping centers, condos, and libraries. But never before has he designed pianos.

Now, 25 colored pencil drawings of different pianos, including one shaped like a quonset hut, one clad with a veneer of tarnished copper, and one that resembles an open Murphy bed (below, left), are on display at Klavierhaus, an antique-piano restoration company in New York City.

Diebboll is collaborating with the company to build a piano based on one of his drawings, and some individuals are commissioning their own.

"We're crossing the fine line between what is a musical instrument and what is a work of art," Diebboll said. "To me these are musical instruments that are meant to be played." *Jessie Mangaliman*



Piano drawings by John Diebboll.

THE REICHMANN FAMILY, DEVELOPERS, IS AT IT AGAIN

"Destination: Technodome" is the name of two indoor, year-round entertainment meccas recently proposed by the Toronto-based Reichmann family. Albert Reichmann is the former president of the failed real estate developer Olympia & York, developers of the World Financial Center in New York.

Albert and his nephew, Abraham Reichmann, formed a new company, Heathmount Arts and Entertainment Corp., which will develop the two technodromes. Both complexes, one in Toronto and one in Queens, N.Y., will include a 500-ft-tall "mountain" for year-round skiing, a simulated rain forest, whitewater rafting "rivers," and a re-creation of New Orleans' Bourbon Street. Together, the projects will cost $1.5 billion.

The 2.1 million-sq-ft Canadian complex will be on a 70-acre site at the former Downsview Canadian Forces military air base. Construction begins next spring and will be completed by 2000.

The Queens Technodrome, in the Arverne urban renewal area, 30 blocks of vacant land on the Atlantic, will also include an Olympic-sized pool and diving tower, seating, a hotel, and a convention center. No start or completion dates have been set. *Albert Warson*

ARCHITECTURAL PRESS ROUNDUP

CRUMBLING JUSTICE

The New York Times, June 29, 1997 There's poetic irony in a crumbling courthouse. The Westchester, N.Y., County Courthouse has a long series of problems, including witness boxes that are too small, security pens with movable partition walls, rickety elevators that break down, and an exterior made from a type of stucco that, county officials say, is absorbing water. Last winter a piece of the facade fell 20 stories, nearly squashing a father and son walking past the building on their way to story hour at the library. The blame, of course, has been laid first on the architect, Welton Becket & Associates, who, according to county attorneys, did not pay attention to details.

AN ARCHITECT BY ANY OTHER NAME . . .

The Wall Street Journal, July 2, 1997 The name I. M. Pei is to architecture what Armani, Calvin Klein, and Gucci are to fashion. So it's no surprise that Pei's sons, Chien Chung Pei and Li Chung Pei, have ridden their father's coattails to some degree to garner clients for their own New York firm, Pei Partnership Architects. That's not to say the two younger Peis are not talented architects. "They are quite good," admits James Freed, Pei-the-elder's partner at New York–based Pei Cobb Freed. Still, many of the sons' clients want Dad involved. They want to say, "I. M. Pei designed my building."

ALL THE BEST CITIES HAVE ONE

Texas Monthly, May 1997 Contemporary art museums are the "must-have civic amenity" of the '90s. Building one of these colossal art palaces with "hundreds of thousands of square feet of shopping mall ambience" signals that a city has arrived. Amidst all this ostentation, the Contemporary Arts Museum in Houston, recently redesigned, is a small and plucky player. The museum's goal is to be user-friendly, not impressive. It features intimate spaces, plenty of seating, and, best of all, a self-service Starbucks.

THOSE BIG, BAD AMERICANS

The Miami Herald, June 11, 1997 Oscar Niemeyer, the Rio de Janeiro–based architect known for designing Brasilia, the capital of Brazil, turns 90 in December. But the fiery communist is still hard at work, this time creating a 36-ft-tall concrete and metal monument that protests U.S. policy toward Cuba, which the architect calls "horrible" and "unjust." Niemeyer's "present to the Cuban people" is a concrete circle broken by the Cuban flag, symbolizing the island's resistance to America's economic blockade. The $150,000 piece will be erected in Havana.

IT'S NOT EASY BEING GREEN

New York Press, June 18, 1997 The new building at 4 Times Square in New York (RECORD, June 1997, pages 73–75) will incorporate all the latest energy efficiencies, including photovoltaic panels, "smart" elevators that learn the habits of their users, a wastewater system that will help run the cooling system, and automatic lighting that powers up when natural light dims. There's only one problem with this exemplary building: several nice old buildings on the site must be razed to make way for it. "Wouldn't the destruction of the existing structures . . . commit a total expenditure of energy that the efficient operation of even the greenest skyscraper would never make up for? How do you justify such wastefulness?"

DESIGNING SPACE TO BURY PEOPLE POSES UNUSUAL PROBLEMS

Room for the dead is running out in West Hartford, Conn. According to a local study, the remaining 1,000 below-ground burial spaces will be used within 10 years. That means trouble for this 21-square-mile town of 60,000 people.

"Without a lot of open space for a new cemetery, the question becomes, 'How do we use our existing space?'" said James Capodice, director of the city services agency.

Architects C. Peter Chow, of West Hartford, and Nancy Barba, of Portland, Me., were commissioned by the city to come up with an answer. Their solution: a high-occupancy graveyard consisting of eight buildings, a garden, and a lawn area, all to be built at the existing Fairview Cemetery. The new space will accommodate 1,800 crypts and a columbarium for 900 urns.

Adjacent to a city park popular with local joggers, Fairview was built in the 1920s. The proposed $6.9 million expansion will be located on a two-acre site presently used as a maintenance yard. Dotted with maple, oak, and ash trees, the site will include a garden with pergolas, timber trellises, and ornamental grasses and berry bushes.

"We want a place where individuals can come to visit and have different experiences, including being quiet and being reflective," Chow said.

"The garden will allow the opportunity for contemplation as well as celebration," added Barba, who designed an award-winning series of mausoleums at the Maine Veterans Cemetery in Augusta. For example, the architects want to restore an old chapel on the cemetery hill and envision it as a site for celebrations, such as weddings.

For now, the plan is just that; it's last on the list of the city's priorities. That's partly because a state law forbids the pre-sale of unbuilt crypts so the city cannot raise the development funds.

But money woes are only part of the problem. "There are economic and diminishing land issues that are driving this, but we are also talking about society's attitude toward death and dying," Barba said. "Mortality is not a favorite subject." *Jessie Mangaliman*

STUDENTS REBUILD BOSNIA



College students from the U.S., Turkey, Italy, Greece, and the Czech Republic are joining Bosnian students this summer to research and rebuild Mostar, the ancient capital of Bosnia.

Conceived by Dr. Amir Pasic of the Research Center for Islamic History, Art and Culture in Istanbul, and administered by Temple University professor Brooke Harrington and Drexel University associate professor Judy Bing, the program, called Mostar 2004, is in its third year. Its goal is to draw attention to the need to reconstruct Mostar.

But it's a diplomatic effort as well, Bing said. "Reconstructing the city is really part of helping to reknit a damaged culture."

It's also an opportunity for the 23 students, including some from Columbia and Yale, to do actual site work, to get their hands dirty. "That's not easy," Harrington said. "There are difficulties in coordinating a party of 23 students from a half-dozen different countries." *Bill Marsano*





WHO WILL SAVE THE NATION'S MOST ENDANGERED HISTORIC SITES?

Every year, the National Trust for Historic Preservation issues its list of the 11 most endangered historic American sites. In the past, these lists have motivated individuals, government agencies, and corporations to work toward saving everything from buildings to battlefields.

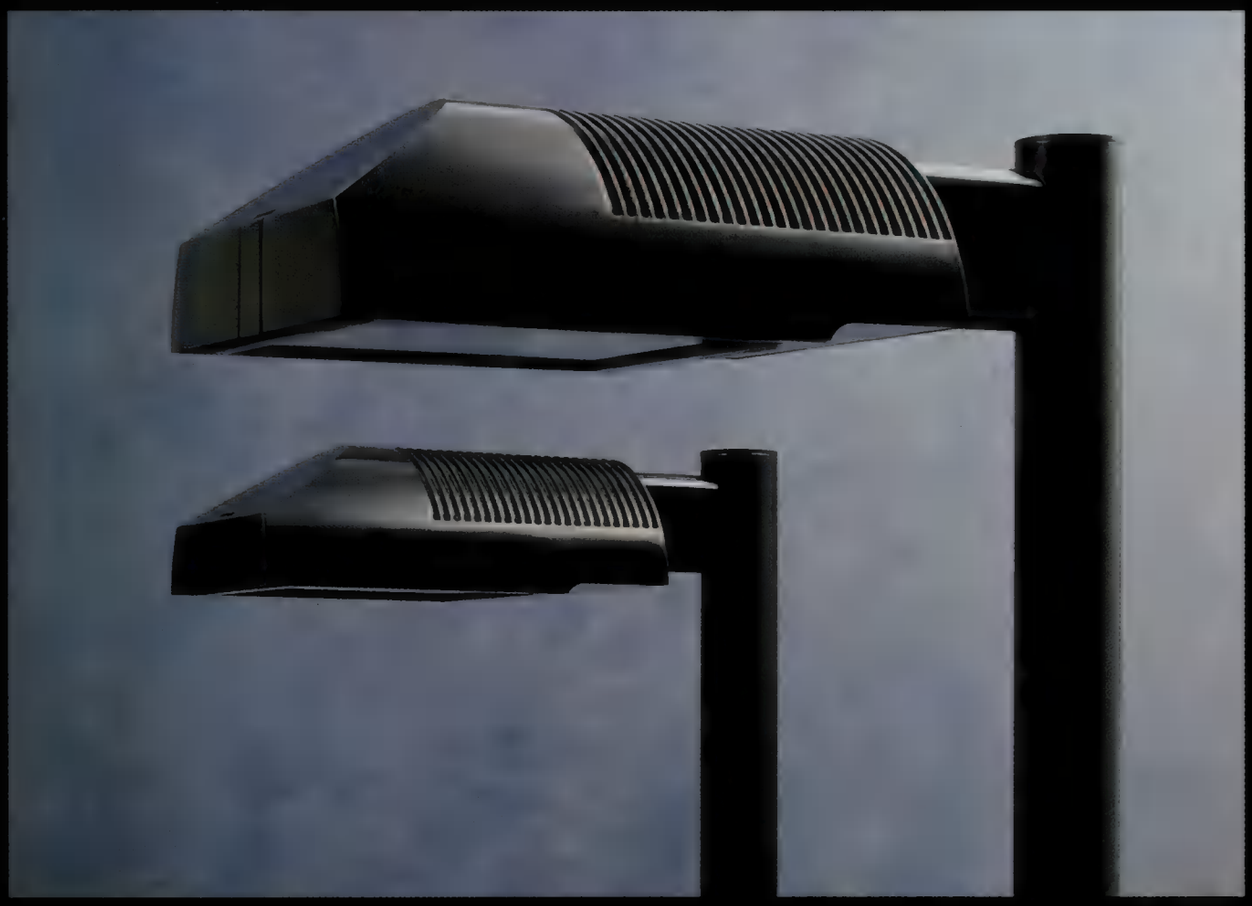
This year's list includes Ellis Island's hospital wards and the Congressional Cemetery in Washington, D.C., both crumbling and overgrown. Montana's Flathead Indian Reservation is in the path of a proposed superhighway, and there are plans to perch high-voltage power lines on Hawaii's scenic Wa'ahila Ridge.

Also on the list is the 1876 Cathedral of St. Vibiana in Los Angeles, the 1931 Stillwater Bridge in Stillwater, Minn., and the 1927 Bridge of Lions in St. Augustine, Fla. All of these have appointments with the wrecking ball, while new, modern replacements are in the works.

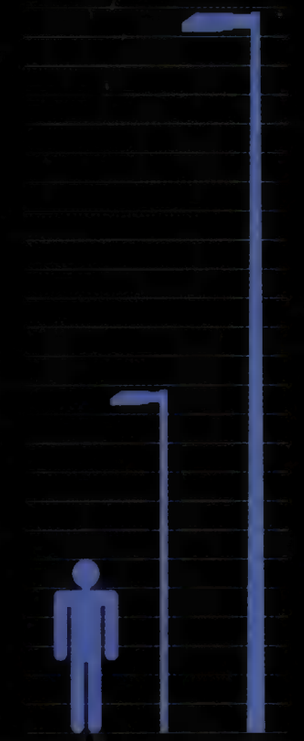
Funding is needed to restore the vacant 1907 Cranston Street Armory in Providence, R.I. New Mexico's Montezuma Castle (left), built by the Santa Fe railroad in the 1880s as a resort, is unusable.

In the Gulf States, all historic buildings infested with Formosan Termites made the list. Finally, the Civil War's Vicksburg Campaign Trail, which winds through Louisiana and Mississippi, faces the consequences of "progress." *Elizabeth A. Krol*

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MODI'IN, ISRAEL'S NEWEST CITY, TAKES SHAPE DESPITE CRITICISM

In the hills of Judea and Samaria, between Tel Aviv and Jerusalem, Israel is building Modi'in, a new city for 200,000 inhabitants and the largest building project ever in this young, construction-happy nation.

The master plan, commissioned in 1988, is by the Israeli-Canadian architect and planner Moshe Safdie. "There has been talk of building a new city in central Israel for 30 years," he said. "It was the flood of Russian immigrants in the late '80s that got it started."

Modi'in—named for the home of the Maccabees, who fought for freedom for the Jews in the second century B.C.—is located in one of the last rural areas in central Israel. Critics fear that the construction of the city will transform central Israel into an undifferentiated megalopolis. Others believe that the money invested in Modi'in would have been better spent on existing towns struggling to [illegible]

[illegible] Modi'in will provide [illegible] that the government is funding for infrastructure will [illegible] proceeds from land [illegible] combination of [illegible] market-driven construction [illegible] Israel," Safdie said.

The urban plan was made in unusual detail. It's divided into sections, each of which is worked out in three-dimensional computer models at a scale of 1:500.

There's a height limit of four stories—below the treetops—in the town. On the hilltops, however, towers as high as 16 stories are allowed. These will serve as orientation points; on clear days, the inhabitants will be able to look across the scrubby brown hills to the Mediterranean.

Safdie took care to preserve the area's topography. The valley floors are "green tongues," accommodating parks and schools. Traffic moves up and down the hillsides along boulevards flanked with housing. Walkways across the valleys connect the neighborhoods. Each valley has specific landscaping—jacarandas, pines, or palms, for example—providing inhabitants with a way to identify their part of town.

The business center is located [illegible] where the valleys come together. [illegible] housing, Modi'in will provide [illegible] jobs in service and light [illegible] It will not be just a dormi- [illegible] for Jerusalem and Tel [illegible]. "Modi'in will be a [illegible]rt," Tracy Metz

TORONTO GAINS NEW PARK AND CONVENTION CENTER IN SINGLE SPACE

The newly opened addition to the Metro Toronto Convention Centre lies hidden beneath a 17-acre park near the shore of Lake Ontario. The $C185 million, 1.1 million-sq-ft underground expansion is one of the first projects to be completed in a proposed $C2.5 billion chain of developments that will make up this city's revitalized waterfront.

Those still to come include a 20,000-seat Raptors basketball stadium, 4,000 residential units, a school, a 100,000-sq-ft aquarium, railway museums, and office and retail space in a former distillery.

Dan McAlister, who managed the project for Bregman + Hamann Architects, based in Toronto, says the urban park above the convention center addition functions as a transitional element, linking the city's core with the waterfront. The park is separated from the downtown, which includes the CN Tower, the SkyDome, and Toronto's main transportation hub, Union Station, by a 210-ft-wide rail corridor.

Covered bridges and a tunnel cross the corridor and connect the two areas. Carefully positioned pedestrian paths make the park pleasant to traverse, and make the lakefront more accessible.

Only a ventilation shaft, a few unobtrusive skylights, and a modest 11,000-sq-ft entrance, which addresses the lake, reveal the convention center's presence. Burying the expansion was necessary because the city's approval was conditional on incorporating a park.

Bregman + Hamann studied other underground facilities carefully during the design phase. A single underground facility of this scale is unprecedented in Toronto, but there are others elsewhere, such as the Moscone Center in San Francisco.

"We introduced natural light… and designed the proportions of the spaces, the lighting, materials, and colors so that the facility has a bright, spacious feeling," McAlister said. The center includes exhibit, ballroom, theater, and multipurpose space, as well as 1,700 on-site parking spaces. *Albert Warson*



NEWLY OPENED MEMPHIS ARCHITECTURAL CENTER INSPIRES LOCAL DESIGNERS **Memphis, Tenn., is no architectural mecca, but Coleman Coker, a partner at Mockbee/Coker Architects, known for its award-winning residential design, is out to prove that there is more to this conservative southern city than Elvis and Graceland.**

An architectural school is the catalyst a city needs to churn out great buildings, Coker said. That's why he founded and serves as director of the year-old Memphis Center for Architecture, a studio located in a converted Memphis warehouse.

This summer, five architecture students are doing internships there. More will arrive next spring for credit courses, lectures, and critiques.

Coker collaborated with the University of Tennessee to create the center. Memphis University doesn't have an architecture school, nor does Coker's alma mater, Memphis College of Art. The closest, at Mississippi State University, is four hours from Memphis.

"An architectural school has an impact on the professional community because it brings conversations about design and theory, and opportunity for critiques," Coker said. "It opens people to new ideas and broadens their perspective." ***Jessie Mangaliman***



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ARCHITECTURAL CRISIS IN FRANCE: "SOMETHING HAS TO GIVE"

About half of all French architects—at least 14,000 practitioners—are believed to be without full-time work in their chosen profession. The French Ordre des Architectes openly describes a profession in deep, sustained crisis. "A tragedy," laments one Paris architect. "Something has to give," proclaims another.

The problems are varied. Resistance to change, innovation, and reform, as well as burdensome regulations mandated by the French government, make architectural firms slow and inefficient. At the same time, the government work so many architects relied on is flagging, as is private-sector demand.

A few gifted and determined French design stars tackle tantalizing commissions at home and abroad, but winning and executing them is expensive. Well aware that work for architects is scarce, clients demand reduced fees and uncompensated front-end efforts.

In a country where the workforce is accustomed to generous salaries and leave policies, running a trim operation is almost impossible. "We still have to warn clients about July and August, when work just stops," says Philippe Turolla, an architect in Paris. Key personnel routinely take off for four weeks in the summer. "Competitors from other countries don't face this."

Capricious, highly politicized decisions on lucrative commissions can change professional fortunes overnight. Take, for example, the awarding of a huge Paris stadium design to one team while the competition winner was ignored. The commission is being legally contested.

Many architects languish in desperation. Some are resentful of incursions by foreign design firms. Meanwhile, the state struggles with chronic deficits, corruption scandals, social discontent, and a changing cast of political figures.

The answer, some say, is to boost the export of French architectural design. Others argue that a healthy domestic policy is needed.

Un- and under-employed architects do what they can. They design furniture, graphics, interiors, even clothing and food. Or they sell building products. In short, they work around architecture, but not in it. *Thomas Vonier*



WILLIAM TURNBULL, JR., DIES AT THE AGE OF 62

If there is a northern California style in architecture, William Turnbull, Jr., created it. His buildings, many of them simple wooden structures, evoke the ragged mountains, the massive trees, and the tawny, sun-bleached shores that characterize this edge of America.

Turnbull is best known for Sea Ranch, the condominium project in Sonoma County, Calif., on which he collaborated with Charles Moore and several other well-known architects. The project was so successful upon its completion in 1965 that Turnbull achieved an instant following—something every architect dreams of.

He went on to play a part in such award-winning structures as Kresge College at the University of California at Santa Cruz, the Warren Zimmerman house in Virginia, and the Foothill Student Housing at the University of California at Berkeley.

A New York City native and graduate of Princeton University, Turnbull "had architecture in his blood," as a critic once said. His father was an architect, as was his great-grandfather, George B. Post, who designed the New York Stock Exchange.

His recent projects include St. Andrew Presbyterian Church in Sonoma (above and right), and Tevot Springs, a house in Knight's Valley, Calif. Both structures rise naturally out of the Northern California landscape and embody a simple, understated



At the time of his death in June 1997, Turnbull was working with partners Thomas Hacker and Eric Haesloop in the San Francisco offices of the Turnbull firm. The firm will continue its work. A memorial fund has been established by the department of architecture at Berkeley to help students research landscape-

PENNSYLVANIA'S FLEXIBLE HOUSE

It's not your ordinary house, though it looks and will probably cost the same as one. It's Susquehanna House, a prototype for a flexible house—one with movable electrical outlets and walls.



The Susquehanna House used commercial construction technologies.

"We wanted to take what was learned in commercial construction and apply it to the home," says designer Steve Lee, associate professor of architecture at Carnegie Mellon University.

Engineered wood trusses span the width of the two-story, 2,000-sq-ft house and carry the load so that interior walls can be moved around. The exterior walls are made of 3 1/2-in-thick polyurethane structural panels that have, Lee says, twice the heat-flow resistance of conventional, 2-by-4 walls.

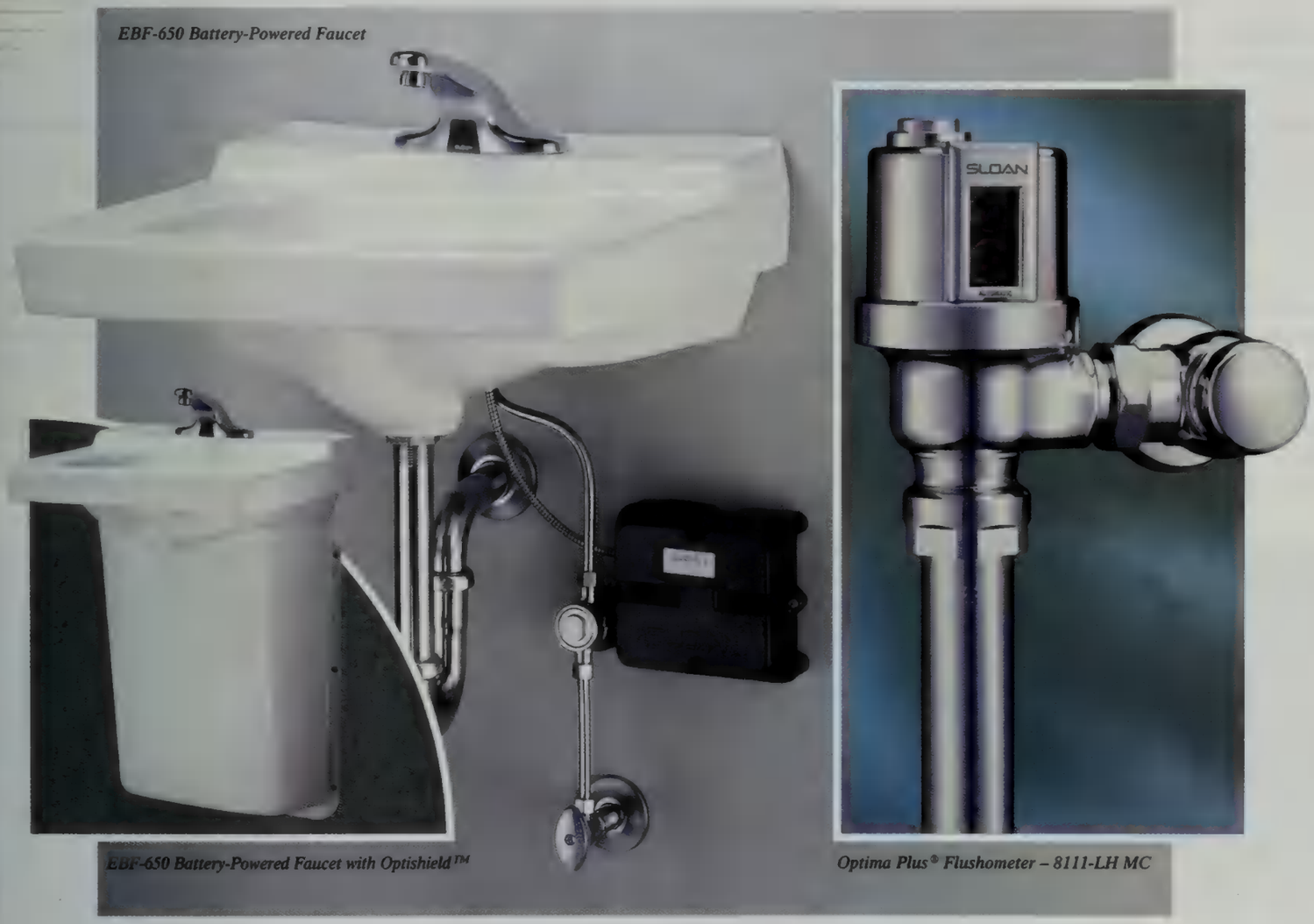
Snap-together tracks, used instead of base moldings, allow for transient electrical, telephone, and computer outlets.

Using premanufactured products and building materials means the house could, ideally, be constructed in less than two months.

The project was sponsored by Armstrong World Industries in Lancaster, Pa., to serve as an experiment and an educational tool. *Elizabeth A. Krol*

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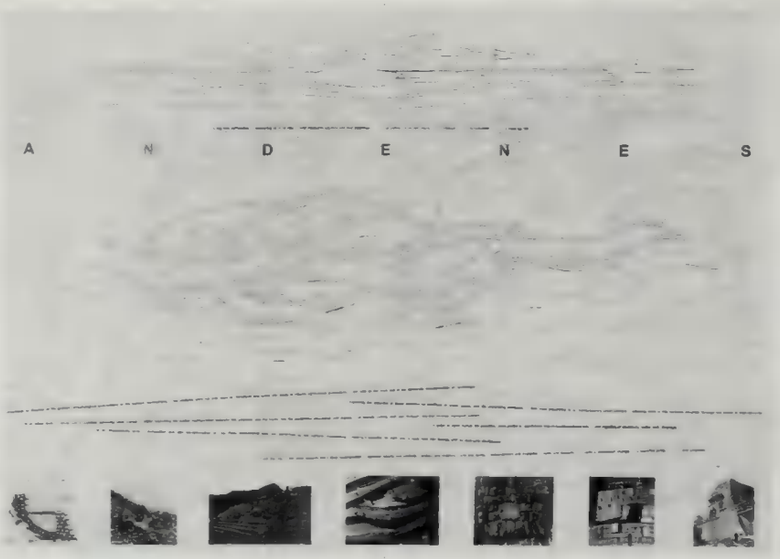
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CIRCLE 21 ON INQUIRY CARD

NEWS BRIEFS

Rotch Traveling Scholarship awarded Andrew James Davis of Somerville, Mass., received the $30,000 award for his design of Boston's Cottage Bridge. One of 60 entries, Davis's design, a landscaped pedestrian passage with accommodations for automobile, boat, and rail traffic, was called "the most intriguing and sophisticated solution" to the design problem. A graduate of the Rhode Island School of Design and Harvard University's Graduate School of Design, Davis is preceded as a Rotch Scholar by Henry Bacon, Ralph Walker, and Louis Skidmore.

Revamp of former National Rifle Association headquarters Under the leadership of Brennan Beer Gorman/Architects and Brennan Beer Gorman Monk/Interiors, the Washington, D.C., building will become a 150-room Marriott Courtyard. The $10 million project will be completed in March 1998. An exterior facelift will help the building blend with neighborhood architecture.



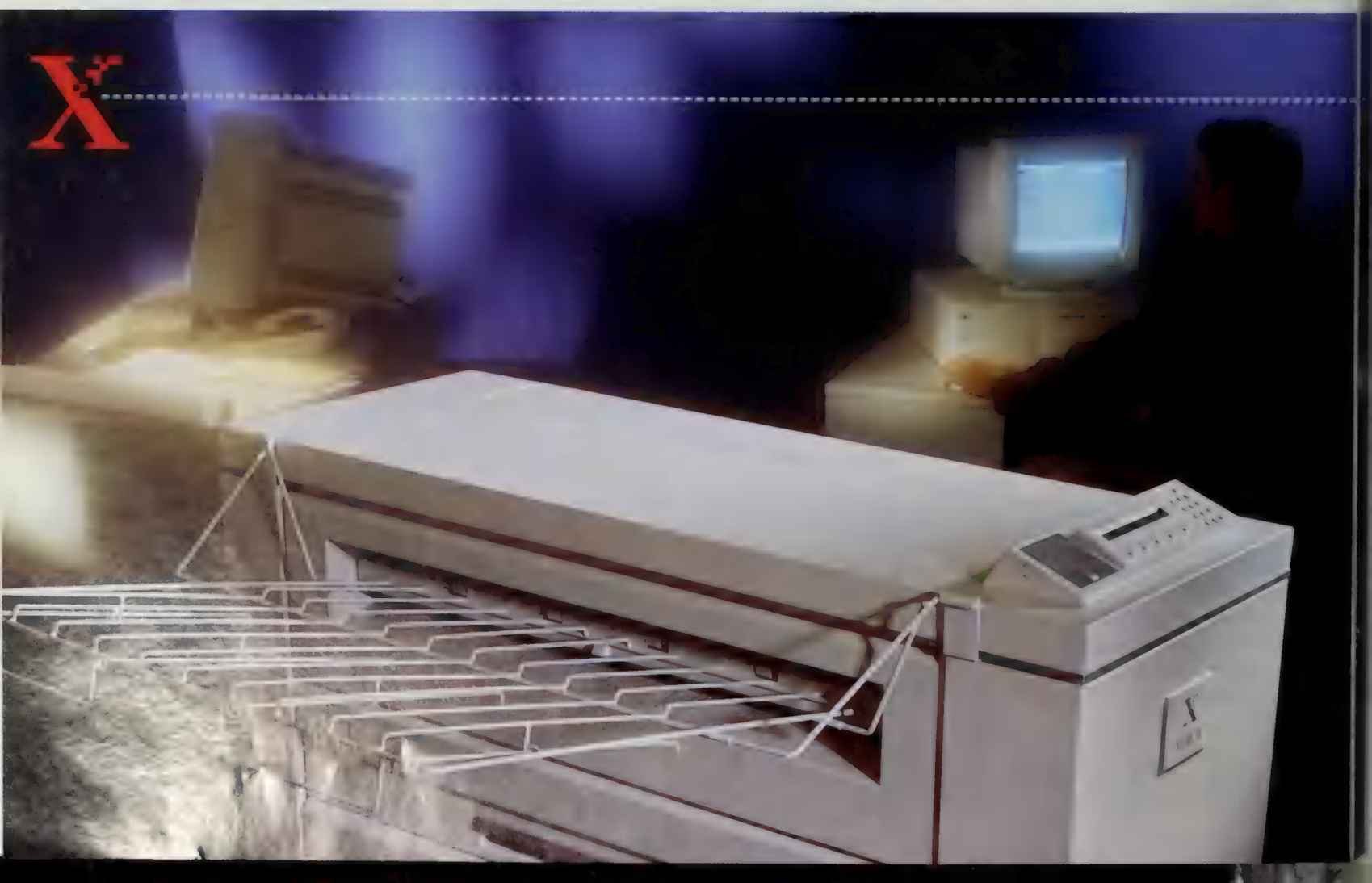
Urban housing plans from the ACSA/Otis Elevator competition.

Two students win Otis Elevator competition Out of more than 2,000 entries from 52 countries, two students tied for grand prize in the 1996–97 Association of Collegiate Schools of Architecture/Otis Elevator International Student Design Competition. The entrants were asked to design a midrise urban housing development. Finalists and their faculty sponsors received cash prizes totaling $30,000.

Herbert L. Beckwith dies Known for introducing modern architecture on the MIT campus, Herbert L. Beckwith helped design 11 buildings there. He went on to become a professor at the school, where he taught until his death on June 3 at the age of 94. Beckwith's work also includes the U.S. Embassy in Taiwan.

New AIA vice president Janet White joins the AIA as vice president of the education department, where she hopes to achieve the goals set by the board of directors concerning professional education and continuing education, as well as those in the Carnegie/Boyer study. White was formerly director of the Hammons School of Architecture at Drury College. She was actively involved in NCARB, NAAB, and ACSA.

Oklahoma City Memorial winner announced Barely two years after the bombing of the Alfred P.



Murrah Building, three young Berlin architects were named winners of the Oklahoma City Memorial competition. Hans-Ekkehard Butzer, Torrey Butzer, and Sven Berg of Locus Bold Design proposed a sloping lawn containing 168 stone and glass chairs, each inscribed with the name of a victim and illuminated at night. The lawn matches the footprint of the Murrah Building and faces a rectangular reflecting pool, landscaped terraces, and two formal "gates of time." The winning design, chosen from 624 submissions (RECORD, June 1997, page 31), will cost approximately $8.8 million and will be completed by 2000.

1997 I.D.E.A.S. awards presented Honoring excellence in architecture that uses structural steel, the competition was co-sponsored by the American Institute of Steel Construction, Inc., and the AIA. National prizes were given to Chan Krieger & Associates, Cambridge, Mass., for their design of the Discovery Museum entrance in Bridgeport, Conn., and to Leonard Parker Associates Architects, Inc., Minneapolis, Minn., for their expansion and modernization of a Lake Superior College facility in Duluth, Minn.

Increased construction activity bodes well for architects A survey of AIA member firms shows profits were up 13 percent last year and are expected to increase as much as 10 percent this year. More than two-thirds of the firms surveyed said they planned on adding staff this year. According to the AIA, growth in construction activity and a subsequent shortage of architects in many regions are accountable for the rising percentages. The South Atlantic states, South Central states, the Midwest, and California reported the tightest job markets.

Graphisoft competition winners chosen at live Webcast Using ArchiCAD and Apple QuickTimer VR, students from around the world created architectural models from works of literature and culture for a student competition cosponsored by the American Institute of Architecture Students and Graphisoft. The winning submissions were Webcast at the A/E/C Systems show in Philadelphia in June. Live Web cams, screen shots of the entries, and a live audio feed of the entire selection process constituted the online site. More than $30,000 was awarded to the winners, including a first-prize work on Asgard from Norse mythology, and a second-place work on the Church of Reason from *Zen and the Art of Motorcycle Maintenance*.

Home improvers choose energy efficiency According to a Fannie Mae poll, 14 percent of those who are planning home improvements this year will be doing so to help conserve energy. Preceded only by kitchen improvements (15 percent), energy improvements—including new windows and doors and upgrades of heating and cooling systems—remained more popular than building decks and renovating bathrooms.

Former AIA president takes public office Chester A. Widom, FAIA, of Widom Wein Cohen, will become sixth district representative to the newly formed Los Angeles Charter Reform Commission. Widom, along with 14 other elected representatives, will help restructure Los Angeles' city government.

Trend Mark Hirsch of Hirsch Associates in Bristol, Conn., is including a "nap room" in his plans for the new Yarde Metals distribution facility in Bristol, where 220 employees will work around the clock. It's not an easy mandate; issues of gender separation, acoustics, lighting, and privacy need to be resolved. "We don't have many models to look at," Hirsch says. "We're not even sure what to call the space." ■

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CIRCLE 23 ON INQUIRY CARD

Calendar

August 3–October 13
Los Angeles County Museum of Art
"Charles Rennie Mackintosh" is a traveling exhibition of the Scottish architect's extensive body of work. A room, fully restored and reconstructed, from Miss Cranston's Ingram Street Tea Rooms of 1900 is part of the exhibition. Call 213/857-6000.

August 14–16
San Jose Convention Center
San Jose, California
Alternative workplace issues concerning people, technology, and environments in the corporate and home office will be addressed at the alt.office conference and exposition. Furniture and office products will be on view. For more information, call 800/950-1314 or visit http://www.alt.office.com.

August 24–27
Toronto, Canada
The International Council of Societies of Industrial Design will focus its biennial conference on the "Humane Village," with the hopes of offering a new perspective on how design can help shape a more compassionate society. Call the Design Exchange at 416/216-2124 or E-mail dx@pathcom.com.

August 24–January 11, 1998
Design Exchange
Toronto, Canada
"Shifting Gears: Green Transportation for the 21st Century" investigates new materials, technologies, and design innovations that have the potential to alter transportation conventions. Call 416/216-2160.

Through August 29
The Skyscraper Museum
New York City
"Downtown New York: The Architecture of Business/The Business of Architecture" is the inaugural exhibition at the Skyscraper Museum, 44 Wall Street. Call 212/968-1961.

Through September 12
Municipal Art Society
New York City
The streetscape of New York City may take on a new character, once plans to award a franchise for new street furniture are completed later this year. The "21st Century Streetscape" exhibition will include full-scale objects and photos of contemporary examples. Also on view are "Fifth Avenue Design Competition," a presentation of ideas by ten firms (through September 5), and "Columbus Circle: Five Proposals for the Coliseum," a display of proposed plans for the embattled site (through September 1). Call 212/935-3960.

September 8
PBS Stations Nationwide
"Planet Neighborhood," a three-part television series, looks at the ways people are using down-to-earth concepts and innovative technologies in their quest to preserve the environment. Hosted by architect William McDonough and produced by WETA with the National Academy of Engineering, the series airs 8–11 p.m. ET on PBS (check local listings). Call Liz Hall, Devillier Communications, 202/833-8121.

Through September 14
Whitney Museum of American Art
New York City
"Frank Lloyd Wright: Designs for an American Landscape, 1922–1932," a traveling show, examines five unbuilt proposals, through original drawings, newly built models, and computer reconstructions. Call 212/570-3600.

Through September 15
Boston Public Library
Boston
The history and architecture of Boston's famous festival marketplace are documented in "Images of Faneuil Hall Marketplace, 1789 to 1976" and "Celebrating a City: The Benjamin and Jane Thompson Collection of Bostoniana." Call 617/536-5400, x280.

September 15–22
London, England
The AIA's London/UK Chapter is sponsoring a seven-day program of tours and lectures in the city. Contact Norvista at fax 800/526-4927.

September 17–19
National Institute of Standards and Technology
Gaithersburg, Maryland
Participants in the Fourth International Symposium on Roofing Technology will address "Challenges of the 21st Century." For information, call the National Roofing Contractors Association at 847/299-9070 or 800/323-9545 or E-mail nrca@roofonline.org.

September 17–19
Fairmont Hotel
New Orleans
The AIA Committee on Architecture for Justice and the American Jail Association are sponsoring "IDEAS/2001: Jail Innovations for the Third Millennium." For more information, call David Roccosalva at the AIA at 202/626-7418.

September 18
Embassy Suites
Omaha, Nebraska
Sponsored by the Joslyn Castle Institute for Sustainable Communities, AIA-Nebraska, and others, the Sustainable Urbanization and Responsive Transportation Colloquium will focus on two subjects: how emerging models of sustainability may provide alternatives to urban sprawl and development; and interdisciplinary work procedures. To register, call Elizabeth Stevens, Castle Institute, 402/595-1902.

September 26–28
Prague, Czech Republic
The Continental European Chapter of the AIA is sponsoring a low-cost, three-day program of talks and guided tours on architecture and urbanism in the Czech capital. Contact Martina Tomasovicova at fax 420/2/265-702.

September 27–28
Points Hilton Hotel
Scottsdale, Arizona
"Does Design Make a Difference?" is the question posed to participants in the AIA Committee on Architecture for Education, held with the Council for Educational Facilities Planners International. Call David Roccosalva at the AIA at 202/626-7418.

Through September 28
Canadian Centre for Architecture
Montreal, Canada
"The Architecture of Reassurance: Designing the Disney Theme Parks" is the first exhibition to explore the origins, intentions, and strategies behind Disney's influential theme parks. For information, call 514/939-7026.

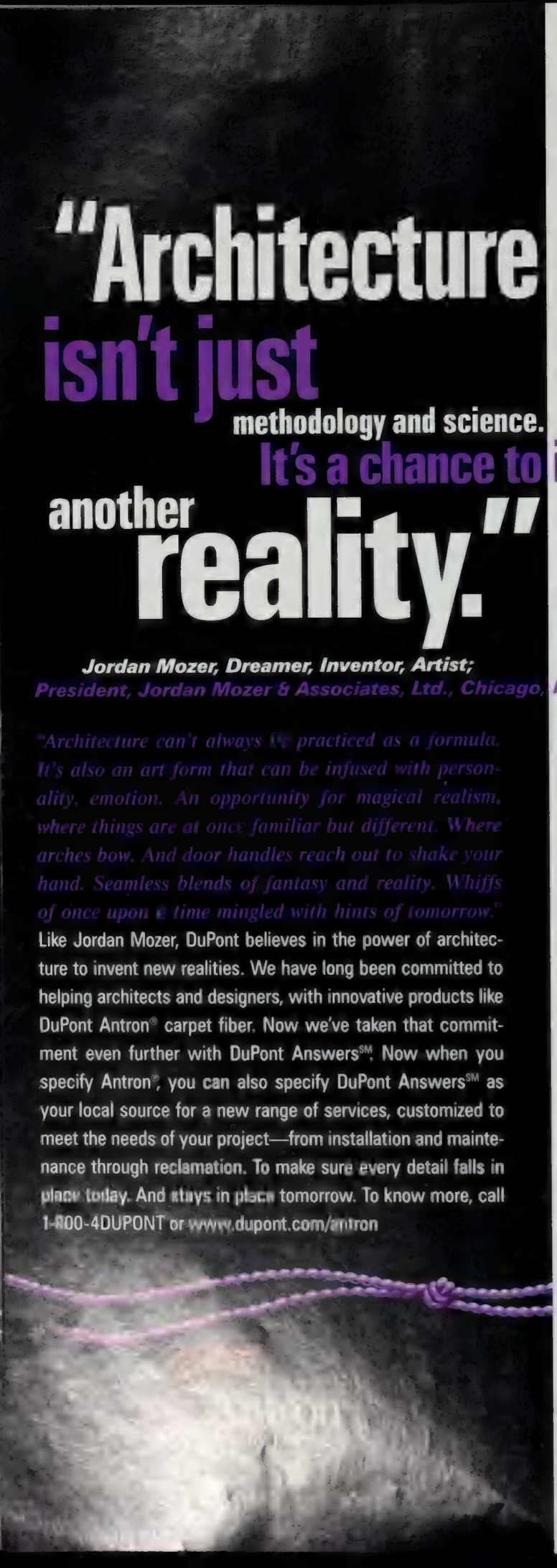
September 29–October 2
Marriott Waterside
Norfolk, Virginia
The 82nd annual conference of Building Officials and Code Administrators International will include business *(continued on page 156)*

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Jordan Mozer, Dreamer, Inventor, Artist;
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"Architecture can't always be practiced as a formula. It's also an art form that can be infused with personality, emotion. An opportunity for magical realism, where things are at once familiar but different. Where arches bow. And door handles reach out to shake your hand. Seamless blends of fantasy and reality. Whiffs of once upon a time mingled with hints of tomorrow."

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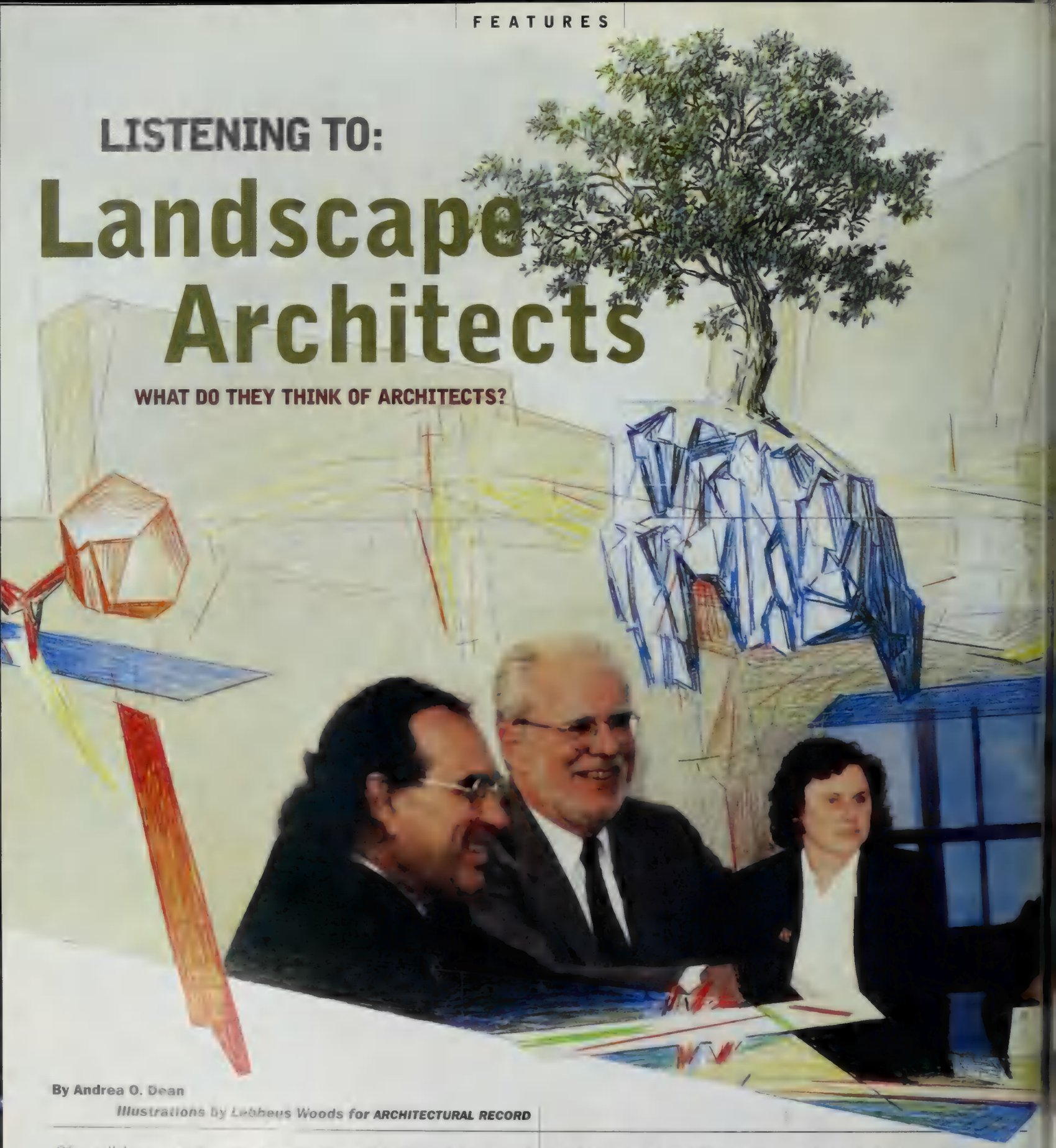
CIRCLE 24 ON INQUIRY CARD



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LISTENING TO: Landscape Architects

WHAT DO THEY THINK OF ARCHITECTS?



By Andrea O. Dean

Illustrations by Lebbeus Woods for ARCHITECTURAL RECORD

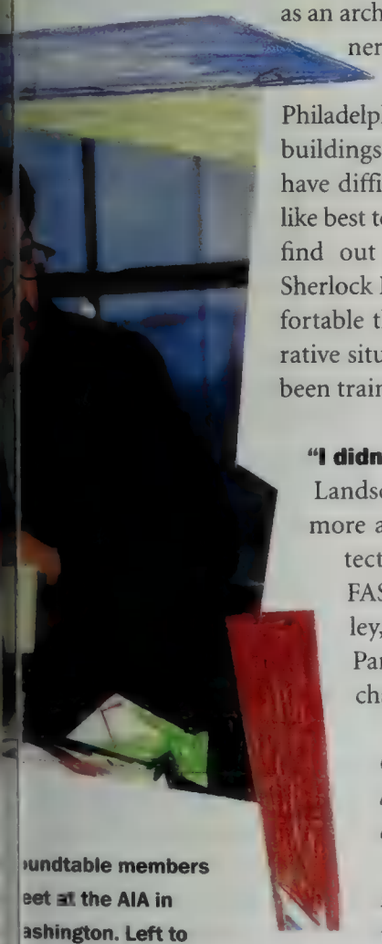
Often collaborators and sometimes competitors and star-crossed partners, landscape architects bring different perspectives to their relationships with architects. To bridge the gap that often separates architects from other construction professionals, ARCHITECTURAL RECORD is launching occasional articles in which voices from related disciplines will be heard. Earlier this summer RECORD assembled a panel of landscape architects at AIA Headquarters in Washington, D.C., to tell us what was on their minds. The participants were Dennis Carmichael (EDAW), Colin Franklin (Andropogon), Peter Walker (Peter Walker and Partners/Martha Schwartz), Michael Van Valkenburgh (Michael Van Valkenburgh Associates), William Roberts (Wallace Roberts & Todd), Patricia O'Donnell (Landscapes), Joseph Lalli (EDSA), and James van Sweden (Oehme, van Sweden & Associates). The moderator was RECORD *editor in chief Robert A. Ivy. Next month, we listen to interior designers.*

Most architects think they understand landscape architecture and its practitioners, but the picture conveyed by the panel we convened was of a profession only slightly more familiar than, let's say, entomology or constitutional law. How many architects would guess, to start with compellingly down-to-earth matters, that entry-level landscape architects tend to earn more than their counterparts in architecture? That landscape architects suffer less severely from economic fluctuations and cycles? That their responsibilities and opportunities are expanding just as those of architects seem to be narrowing?

And how many architects would acknowledge this: "Not only are we landscape architects not nervous about dealing with chaos, but sometimes it is what we like to play with best, because we are trained to understand large natural patterns and to recognize that chaos has an order or pattern to it that we can comprehend. Architects are a little nervous about chaos; they like order."

Or how about this one: "We're much more comfortable than architects [in] so-called controversial projects that require working with committees and various groups, filtering information and giving the client several possible intelligent decisions. Architects want to give clients the answer, and quickly."

These statements were made by Dennis Carmichael, ASLA, a vice president of the Alexandria, Virginia, office of EDAW. With 415 employees in 15 offices, it is an unusually large landscape architecture firm, but Carmichael's belief that he and his colleagues tend to take a more holistic, less linear approach than architects was a pervading theme of the roundtable. Listen, for example, to Colin Franklin, who was trained as an architect and then became a founding partner of the 20-person, ecologically oriented landscape firm of Andropogon in Philadelphia. "Architects working on complicated buildings want to narrow a problem down. We have difficulties with that. Landscape architects like best to ask questions, expand the boundaries, find out how the whole thing works. It's a Sherlock Holmes thing. We are much more comfortable than architects in open-ended collaborative situations. Architects traditionally haven't been trained that way."



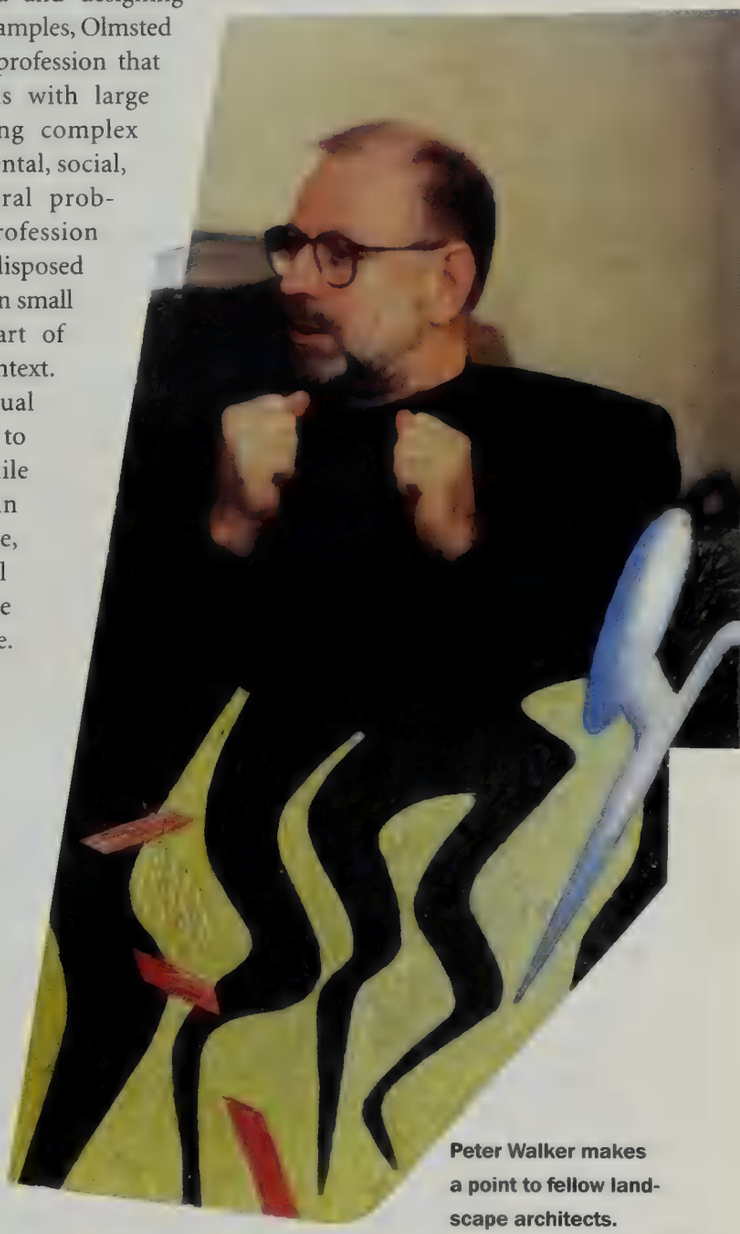
undtable members eet at the AIA in ashington. Left to ght: Lalli, van veden, O'Donnell, id Van Valkenburgh.

"I didn't know you did all that."

Landscape architects think they know far more about how architects work than architects know about them. Peter Walker, FASLA, a partner in the 30-person Berkeley, California, firm of Peter Walker and Partners/Martha Schwartz, Inc. and the chair of the University of California at Berkeley's landscape architecture department, told the panel what happens when he visits his architect clients every three or four years. "I give them a slide show to remind them of the breadth of services that we offer. Their response is always, 'I didn't know you did all that.'" What he tells his clients is that his firm will not only site a building, but evaluate the forces that may shape or affect its form, such as existing urban design configurations and wind and waterflow patterns. He tells them that he has planned and designed plazas, courtyards, recreation systems, and parks; built and rebuilt roads and trails; planned new communities and towns; restored wetlands; reclaimed toxic landfills and extraction areas. Most of the panelists could present a similar list.

If time permits, Walker will remind his client that in founding the profession of landscape architecture in America, Frederick Law Olmsted, Sr., lashed together the science of farming or husbandry (now called ecology), civil engineering (now referred to as infrastructure), and sociology. The last, Walker stresses, was the generator of most of Olmsted's work, including his winning 1858 competition entry, submitted with Calvert Vaux, for New York City's Central Park. That commission transformed Olmsted into a man of purpose, obsessed with the democratic ideal of making nature accessible to all.

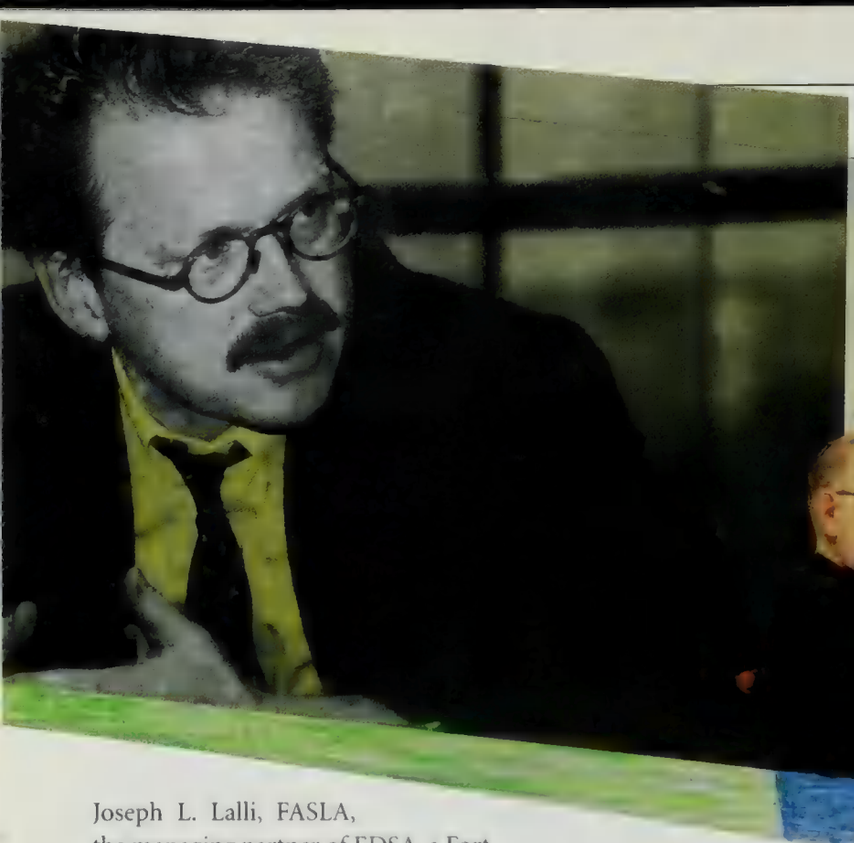
In the process of popularizing the idea of public parks in America and designing brilliant examples, Olmsted defined a profession that often deals with large sites posing complex environmental, social, and cultural problems, a profession that is predisposed to view even small sites as part of a larger context. A conceptual approach to design, while optional in architecture, is essential in landscape architecture.



Peter Walker makes a point to fellow landscape architects.

Contributing editor Andrea O. Dean is editor-at-large of Preservation *magazine and a contributing editor of* Landscape Architecture.

Lebbeus Woods is an architect in New York City who has exhibited his drawings in galleries and museums around the world. His latest book, Radical Reconstruction, *was published earlier this year by Princeton Architectural Press.*



Joseph L. Lalli, FASLA, the managing partner of EDSA, a Fort Lauderdale- and Orlando-based firm of 80 landscape architects and planners that has worked on hotels, new communities, and public-sector projects, explained, "We seem to have an ability to look at a bigger kind of thing. A lot of architects get so down to looking at a micro scale it doesn't seem to fit into the whole, the bigger picture."

Less fashion and style, say landscape architects

Another obvious difference in the way the two design professions approach their work, the panel members asserted, is that landscape architects are more attuned than architects to conceiving a project as an experience rather than as an orthogonal design. James van Sweden, FASLA, president of Oehme, van Sweden & Associates, a 21-person practice in Washington, D.C., stressed that fashion and style play a smaller role in landscape architecture and that while "most architectural work will never look better than on the day it is completed, that of the landscape designer's will never look worse." Van Sweden's firm specializes in private gardens and urban parks and recently created the landscape design for the winning entry in the World War II memorial competition, the controversial final major addition to the capital city's Mall.

Landscapes undergo substantial change; they are ephemeral, which has its remunerative advantages, noted Patricia O'Donnell, FASLA, a principal of Landscapes, a five-person practice that specializes in preserving historic landscapes and has offices in Westport, Connecticut, and Charlotte, Vermont. O'Donnell includes in her reports to clients recommended plans for future upkeep and renewal. Overall, landscape architects [illegible] clients of repeat clients. Lalli said that EDSA has up to [illegible] Carmichael placed EDAW's percentage at [illegible] FASLA, a founding partner of the [illegible] Wallace Roberts & Todd of [illegible] and Coral Gables, Florida, [illegible] characteristic of landscape architecture is the breadth of its domain. And while the influence and jurisdiction of architects has narrowed in recent years, in line with tighter budgets and the increasing authority of construction managers, the scope of landscape architects' work has expanded. (Architects, though, are trying to regain control over more of the building process. The AIA, for example, has launched an initiative called "Practice and Prosperity," aimed at expanding architects' scope of services from predesign to postoccupancy.)

From designing Central Park, which started as an improvement project on Manhattan's outskirts, landscape architects have broadened their sights to reclaim huge industrial areas and create plans for entire counties, new communities, campuses, ports, airports. "There's a lot of work out there," said Michael Van Valkenburgh, FASLA, the chair from 1990 to 1996 of the Harvard Graduate School of Design's landscape architecture program and founder of Michael Van Valkenburgh Associates, a nine-person practice in Cambridge, Massachusetts. Van Valkenburgh regrets that the most talented young people tend to be attracted to architecture, largely because they know nearly nothing about landscape architecture.

WHILE MOST ARCHITECTURE WILL NEVER LOOK BETTER THAN ON THE DAY IT IS COMPLETED, MOST LANDSCAPE DESIGN WILL NEVER LOOK WORSE.

In fact, three of the panelists began as architects—van Sweden, Franklin, and Roberts—and subsequently became attracted to landscape architecture by the opportunities it affords to tackle complex and significant problems. Franklin explained that his firm has worked on ports and airports in Third World countries where the wrong site plan "might have obliterated 10 small towns or flattened a mountain. As a landscape architect-planner who knows what will happen to the environment," he said, you become central. "You may not get to do nice design work, but you're having an important impact."

Propelling the profession's expansion during the last 25 years have been community planning, an increase in regulations, and the environmental movement. Legislation that established the Environmental Protection Agency in 1969 "created a mandate for environmental investigation, which was a terrific source of work. It legitimized us," said Carmichael. Panel members and their practices did not reflect basic changes that environmental legislation and regulations brought to the profession, O'Donnell pointed out. Today, landscape architects who work for public agencies constitute 20 percent of the profession. By contrast, only 3.8 percent of architects are in public service. Some landscape architects work for agencies that build, such as parks and public works departments, the National Park Service being the largest single U.S. employer of landscape architects. Franklin explained that the nature of design work for public agencies has also changed: the job of some landscape architects, for example, consists entirely of consensus-building for planning and design decisions.

Some don't design at all

Still another breed of landscape architect doesn't design at all, but works for government agencies on such policy issues as land-use planning, watershed maintenance, and forest management. Many of the schools, said Walker, give the Master of Landscape Architecture degree in environmental planning, a discipline concerned with regional plans, national preserves, and the like. Unlike city planning, environmental planning generates no buildings and, being protectionist, "often resists construction," said Walker. To which Robert Ivy responded rhetorically, "Isn't that a defining difference between landscape architects and architects?"

You would assume that a significant degree of disunity exists in a profession embracing ecologists who don't concern themselves with construction and designers who make a profession of it. So it appeared during the early part of the session; talk centered on "schisms" and "dichotomies." But Van Valkenburgh shifted the discussion's direction, saying, "You don't have to make a choice here. The programmatic imperative of being environmentally sensitive has become a kind of founding ground for landscape architecture, just as functionalism was a part of the Modernist movement." The conversation increasingly described a profession of exaggerated divisions important mainly to academics. The panelists turned their attention to their shared interests and characteristics, their working relationships with architects, and present and future trends in their own profession. Common to all landscape architects is an environmental ethic. Roberts spoke of a moral calling. "I think that in the field there is



Walker, Carmichael, Lalli, van Sweden, editor in chief Ivy, and Andrea Dean discuss the issues, while an idealized landscape overtakes the conference room in Lebbeus Woods's drawing, above.

Landscape architects moved quickly from their role in history to fees, from education to the environment.

a commonality of taking the high road, having a moral integrity toward managing resources and saving the planet." At this point Van Valkenburgh interjected, "The sappiness that comes along with that is a real problem in the profession. I think it makes a lot of confusion to get preachy, as we do, about what we do."

Turning to the profession's relationship with architects, the panelists described a love-hate affair. "The love part is when a collaboration is a true, honest-to-God respectful one. The hate part is when we're not treated with consideration but brought in after the building design and the site plan are complete to shrub it up," said Carmichael. The panel agreed that productive alliances improve the work of both professions, but none denied the existence of landmines for landscape professionals who work as subcontractors for architects. Franklin, who called his firm's relationships with architects "very good but always fraught," remembered instances of "being brought into a project as the landscape architect/environmentalist or the landscape architect/sustainable designer on a team to have our ideas totally subverted by a budget whose sole focus is the building." It was stating the obvious, he said, to assert that most architects don't regard landscaping as a high priority.



Different mindset than architects

Nor does it help that architects and landscape architects tend to approach projects with different mindsets, the landscape architect being more inclined to give at least as much weight to process as to product. (Architects, however, might argue this point.) There is also a matter of ethics: the way the panel saw it, the architect represents the client, while the landscape architect feels an obligation to also represent the interests of the environment, the community, and even the culture. "You often stand right where the warring factions come together on positions that are not easily resolved, and no amount of roundtabling is going to resolve them," said Walker.

He further recalled that the Modern movement brought with it a belief in interdisciplinary collaboration, and he noted that Roberts' firm, [illegible] landscape architects (Roberts and Ian McHarg) and two [illegible] (David Wallace and Thomas Todd), is an unusually successful [illegible] teamwork. Wallace Roberts & Todd is, however, [illegible] the panel participants, as are true [illegible]. "My relationship to architec[illegible]p to certain architects," Walker [illegible]

[illegible] collaboration required more than mere participation on a team: "It means you're an active contributor to all parts of the design process." O'Donnell later mentioned in a follow-up telephone interview that she routinely gives architects with whom she will work a list of conditions for collaboration. The list demands, among other things, that her firm be privy to all communication with the client and that she be allowed to review all documentation that is presented to the client in time to react and suggest changes. Often forgotten, she said, is that architects and landscape architects have an important common interest: the "growing of good clients. We all know from our own experience that when our peers give us awards it's because we had a good client." And the more enlightened the clients become, the better the chances of also enlightening the public about design.

The surest way for a landscape architect to escape the problems of subcontracting is to work directly for a client, and every panelist mentioned it as the preferred arrangement. Although direct contracts remain the exception, they are becoming the norm for designers who have gained broad renown (Walker, Van Valkenburgh), have strong track records in large-scale commercial or institutional work (Lalli's EDSA, Carmichael's EDAW, Roberts' WRT, and Oehme, van Sweden), or have sought-after specialties (O'Donnell's preservation emphasis, Franklin's expertise in ecological design and planning).

There are, further, at least two types of projects for which clients are increasingly hiring landscape architects directly with the expectation that they will lead the team: projects that reclaim environmentally damaged sites, and controversial projects, such as wetlands restoration and community planning projects, that require building a consensus, a process requiring an open-ended approach, rather than a simple choice between two alternatives.

"MY RELATIONSHIP TO ARCHITECTURE IS LESS SATISFYING THAN MY RELATIONSHIP TO CERTAIN ARCHITECTS," STATES WALKER.

What about sprawl?

How ingrained such an approach is among landscape architects became apparent when Ivy asked the panelists to talk about issues that concerned them. What, for instance, was their stance on sprawl? The panelists agreed that, yes, sprawl and the automobile culture are deplorable, but suggested that the phenomenon must be understood in all its contradictions. The cause of sprawl is not always what you are led to believe, one speaker pointed out. In Los Angeles, for instance, sprawl followed the path not of roads but of railroad tracks that once covered the area. He also pointed out that freeways might not be all bad, since they join widely scattered people with common interests into a community of sorts. The approach was to ask questions; solutions or a stance might emerge later.

Of course, solutions didn't emerge in this meeting, but Lalli, whose firm has planned and designed new residential communities in the United States and abroad, observed that the preferred model now tends to be a mix of the so-called New Urbanism—with its town centers and walkable distances—and the more open conventional suburb. Carmichael asserted that "developers have learned that good design equals return on investment. Rather than bulldozing a site into submission, they now try to celebrate its intrinsic qualities."

Another issue that is of great concern to both landscape architects and architects, said Van Valkenburgh, is that "the 99.999 percent of the world out there, which none of us does work for, consists of a Balkanized public of warring interest groups. The majority knows little and cares less about design and wants everything Lite, dumbed-down." No one disagreed, but most panelists saw another side of the argument. Carmichael, for instance, pointed out that a worldwide reaction against homogenized, synthetic culture has set in. His firm and Lalli's are among several that have made a specialty of planning and designing large commercial and residential projects that attempt to retrieve the individuality of a region and culture.

Franklin finds that often his role in a project is "just to reveal a group's place to them." Similarly, along with our culture's tendency to oversimplify complex issues, there exists an opposite tendency, said *(text continues on page 160)*



Some panelists manage multidisciplinary firms. Left to right: Bill Roberts (Wallace Roberts & Todd), Colin Franklin (Andropogon), and Dennis Carmichael (EDAW).

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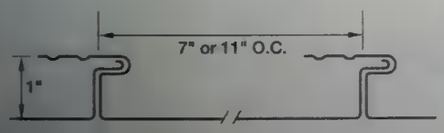
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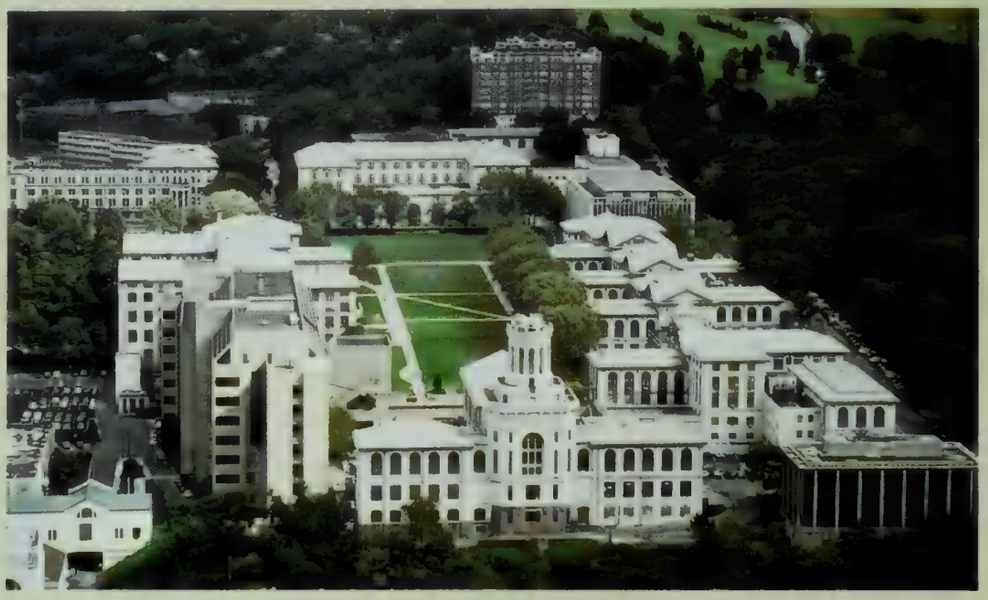




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Color: Sandstone
Profile: Flush Panel

Rubenzer Residence
Prior Lake, MN
Architect: Bruce Lehrer Architect
Roofing Contractor: D.H. Nygren/ Specialty Systems
Color: Stone White.
Profile: Flush Panel

CIRCLE 25 ON INQUIRY CARD



Henry Hornbostel's first master plan for Carnegie Mellon University (early sketch, below; as built, above) created an idealized precinct for learning. Its urban qualities were extended in Michael Dennis's competition-winning scheme (to left in model).





PROJECT DIARY: After 12 years, three buildings, and $100 million, the UNIVERSITY CENTER respectfully extends a singular campus vision.

by Mildred F. Schmertz, FAIA



It is rare that a single architect is able to put his personal stamp on an entire college campus. At 93-year-old Carnegie Mellon University (CMU), in Pittsburgh, this has happened not once but twice. Henry Hornbostel created a Beaux Arts ensemble of unusual formal legibility and power. In ensuing decades, however, Hornbostel's vision, out of style, was ignored as the campus grew. Beginning in 1987, CMU again chose one architect, and charged him with reordering the campus while recognizing its original vision.

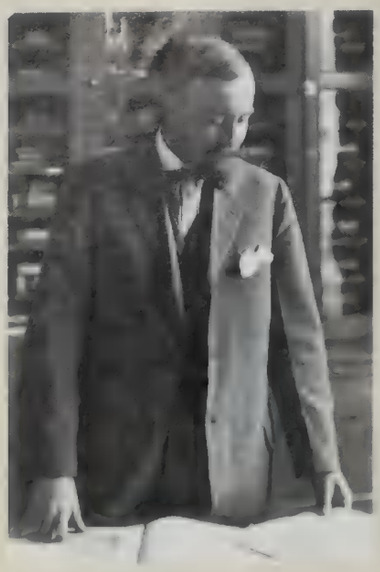
1904-1932

The New York City firm of Palmer and Hornbostel beats 44 competitors to master plan a campus for the proposed Carnegie Technical Schools (soon to become Carnegie Institute of Technology), underwritten by steel baron and philanthropist Andrew Carnegie. The 32-acre site, donated by the city, is in Pittsburgh's Oakland district, a fast-growing cultural enclave on the hills above the smoke-belching river-bottom steel mills. Carnegie (1835–1919) foresaw that technical education would be increasingly demanded by rapidly modernizing industrial society.

Hornbostel's plan was consistent with other eclectic campuses of the time. Carnegie, along with such educational philanthropists as Leland Stanford at Stanford University and John D. Rockefeller at the University of Chicago, envisioned cities of learning, shaped by contemplative quadrangles or offering inspirational vistas climaxed by important buildings. Although it owes a formal debt to Thomas Jefferson's University of Virginia and the academic work of McKim, Mead & White, Hornbostel's plan is unique. Its abstracted forms and some of its characteristic materials—cream-colored brick, white terra-cotta trim, pale gray granite, and exposed concrete, punctuated by polychrome bands of terra cotta and black roof tiles—are akin to the structures of steel and railroading. These are industries, after all, where graduates are expected to find careers. Architectural historian Walter Kidney, in the new edition of *Pittsburgh's Landmark Architecture* (published in 1997 by the Pittsburgh History & Landmarks Foundation), describes the result as "an almost white campus with occasional touches of strong color, theatrically presented." Hornbostel revises his master plan in 1906 and 1911, and designs nine buildings, enough to establish a consistent and fully realized campus identity, completing the last, a gymnasium, in 1932.

Mildred F. Schmertz, FAIA, a Pittsburgh native, writes about architecture for several publications. She was a longtime editor at RECORD *and was editor-in-chief from 1985 until her retirement in 1990.*

Project: *University Center, Carnegie Mellon University, Pittsburgh*
Architect: *UDA/MDA Architects, a Joint Venture—Michael Dennis, principal-in-charge; Erik Thorkildsen, project architect; Daniel Boxx, AIA, Edgar Adams, Pamela Butz, Deborah Collins, Stephen Dadagian, Gerard Damiani, Lori Geissenhainer, Kimberly Genereux, Elizabeth Kamell, Glenn Knowles, David McCullough, Michael O'Keefe, Luca Ricco, David Tabenken, Beth Worell (MDA team); Donald K. Carter, FAIA, Raymond L. Gindroz, AIA, principals-in-charge; James P. Goldman, AIA, principal; Paul Ostergaard, AIA, Karen Loysen, AIA, Alan Chu, Eric Clapper, Stephen Englert, John Figel, Margaret Flinner, AIA, Peter Kreuthmeier, Barry Long, AIA, Michael Zanolli, Donald Zeilman, AIA (UDA team)*
Engineers: *Dotter Engineering (structural); Peter F. Loftus Division, Eichleay Engineers (mechanical)*
Consultants: *GWSM (landscape); William R. Thornton (acoustics); Maguire Hilbish Associates (lighting)*
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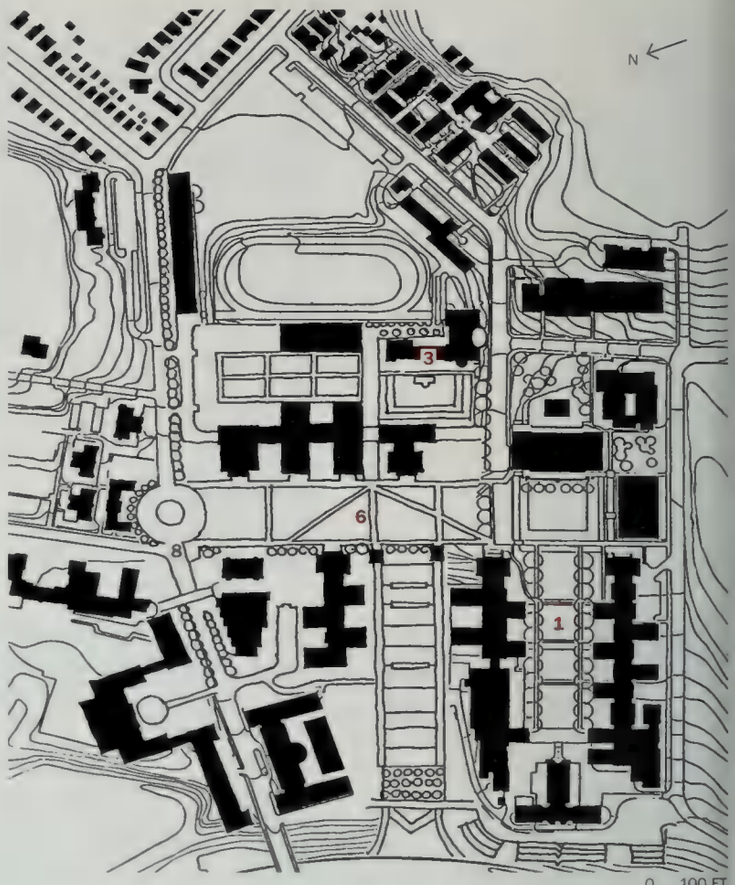


Walter Kidney describes the style of Henry Hornbostel (above), especially at CMU (below), as "a personal kind of Beaux Arts, quite classical in some details, quite free in others."





Henry Hornbostel, disciplined eclectic: Brooklyn born, and trained at the Ecole des Beaux Arts, Henry Hornbostel (1867–1961), Carnegie Mellon's first master planner, had an active practice in New York City until World War I. He remains best known there for the Hell Gate, Queensboro, and Williamsburg bridges. His ability to marry Beaux Arts forms with the industrial underpinnings of 20th-century construction served him well in Pittsburgh, which became his principal base. In 1905 he accepted an appointment as a professor of architecture. His program included night school, with tuition pegged at $5 a year for Pittsburgh residents and $7 for nonresidents. This early atelier was to become the architectural department of the College of Fine Arts, with Hornbostel as chairman. Though he worked at CMU for 30 years (some of it shown, left), his proudest campus achievement was the College of Fine Arts, completed in 1916. It was originally named the School of Applied Design, but Hornbostel always intended that the arts taught in his cherished building were to be fine, not applied, and that each would occupy a space that best expressed its nature. Intricately fitted into a U-shaped Renaissance palazzo, with three five-story wings surrounding the low projecting pavilion of its grand foyer, are the five fine arts: sculpture in the basement; drama on the main floor; music above; architecture in vast drafting rooms on the fourth floor; painting at the top, under the skylights. The Depression and World War II ended both campus construction and other work. His 42-year career was over. When building resumed after the war, Hornbostel was in his 80s, a little late for a fresh start. He would no doubt have struggled more had he been younger. His [illegible] Beaux Arts style, [illegible] since 1950s, was in [illegible] dispute. —*M.F.S.*



CRSS MASTER PLAN, 1985

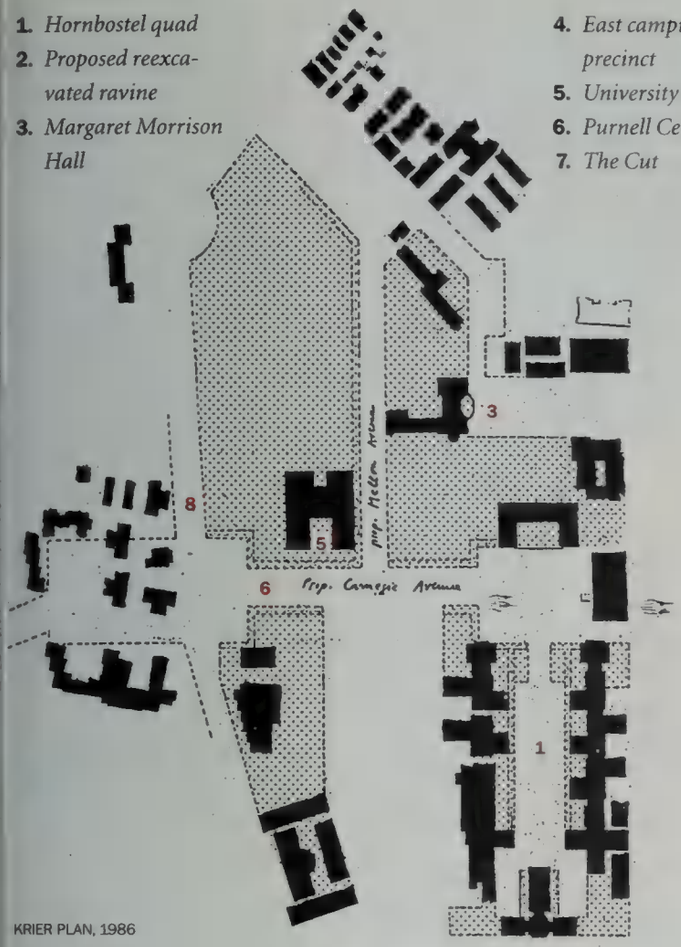
1932-1984

The acceptance of Modernist theory comes late to Pittsburgh, but by the 1950s most architects have become converts. The campus planners who follow Hornbostel—Githens and Keally in 1938 and Sasaki Dawson & DeMay in 1968—accommodate CMU's rapidly expanding postwar student population with little regard to the pattern set by Hornbostel. Indeed, their initiatives lack a controlling architectural form, and chaotic development follows. Nearly all the work is done by leading Pittsburgh firms. Modernists all, their architecture expresses the school's technical orientation through exposed structure and, for the most part, metal-and-glass cladding. Except for the the Hunt Library (1961), by Lawrie & Green, none of the buildings even acknowledge Hornbostel's plan. In 1967 Carnegie Tech is renamed Carnegie Mellon University.

The master plan of CRSS was the first to propose unifying student athletics, dining, meeting, and performing arts in one campus complex. Leon Krier suggested the integrated urbanity realized by Dennis.

1984-1990

By this time the student commons, built in 1960, is deemed inadequate, requiring additions or complete replacement. The Department of Drama in the College of Fine Arts has long outgrown its space and requires a separate performing arts center. CMU once again decides that a new long-range master plan is needed. A master plan by CRS Sirrine, completed in 1985, proposes reinforcing the eastern edge of "the Cut" (which, ironically, is a filled ravine) with new construction. The Cut is a green swath perpendicular to Hornbostel's lawn that links the original campus to Forbes Avenue, the key approach road (campus plans, above). In 1986 Leon Krier further clarifies the emerging campus diagram by proposing that a secondary east-west axis CRSS proposed be extended as



KRIER PLAN, 1986



1997 CAMPUS PLAN

a pedestrian street to the eastern boundary of the central campus, which would be divided into four quadrants infilled to create a more coherently urban environment. These studies become the basis of the program for the University Center competition, held in early 1987.

The jury's criteria show that critical judgment has come full circle: they seek a design "that will equal the quality of the original quadrangle designed by Henry Hornbostel." The great Beaux Arts architect, his style so recently devalued and abandoned, is back in the pantheon.

The jury chooses the scheme submitted by Michael Dennis, Jeffrey Clark & Associates with TAMS, lauding the way it "reaffirms the best of Carnegie Mellon while suggesting a means of shaping the future of this fine campus." (Other participants in the invited competition are Koetter Kim & Associates; Machado and Silvetti Associates; Skidmore, Owings & Merrill's New York City office; Damianos & Associates with Geddes Brecher Qualls Cunningham; and Jung/Brannen Associates.)

The winning plan subtly recalls Hornbostel's original in its use of axial quadrangles formed by building walls. The Cut is reworked as a new quadrangle, with a student-union building to its east and a performing arts center to its west. It has a gateway onto Forbes Avenue, creating a genuine college entrance for the first time. The plan also shows the restoration of the upper part of a ravine that once ran parallel to Hornbostel's quad. Its picturesque landscape would demarcate the two master plans, yet a bridge reminiscent of one Hornbostel once proposed would tie them together.

Today, planners tend to be invited to build little or nothing of what they propose. Indeed, CMU might have seemed more "responsible" had it chosen a more experienced firm to execute Dennis and Clark's scheme. Dennis's firm was small, but an earlier, unbuilt student center proposal was well thought of, as was his book, *Court and Garden*, about Paris' elegant 19th-century housing. But Dennis credits Ted Nieremberg, a trustee, for convincing Carnegie Mellon that such a small firm would work harder to get the project right.



1991-1995

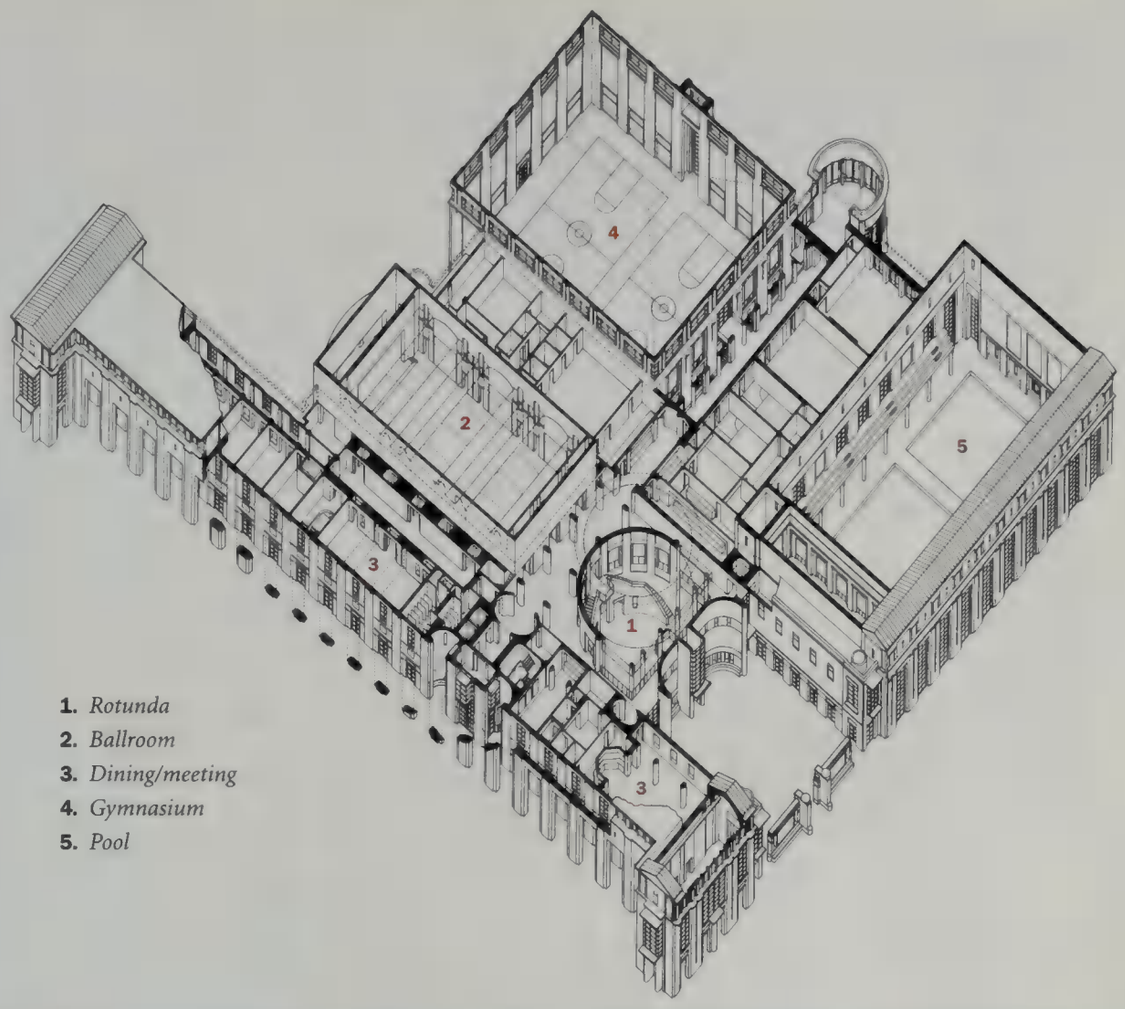
Dennis and Clark are awarded the design of the first phase of the complex, what is called the east campus precinct. They take the project through design development, then hand it off for completion to TAMS, a Boston firm. "Before this competition," says Dennis, "Carnegie Mellon had an intellectual reputation but had terrible facilities for student life. There is extreme competition for students, and the university made a commitment to reorganize the campus and build facilities that improved the atmosphere." New athletic fields form an active-play quadrangle surrounded by a new dormitory and bleachers built over a parking garage. Occupied in 1990, the east campus sets the tone for the new center by creating urban street walls along Forbes Avenue and the definition of the new east-west pedestrian way called for in CRSS's plan. *(text continues)*

The University Center (foreground, above) extends the street wall along a pedestrian path first defined by the east campus precinct Dennis completed in 1990 (background, above). The center's south elevation faces tennis courts (right), which Dennis hopes will become the top of a picturesque ravine. An entry court and rotunda (opposite) divide the end pavilion of the University Center's meeting and dining areas from the larger volume enclosing the pool.



Though the materials resemble Hornbostel's and the architectural language evokes Classicism, the proportions are Dennis's.

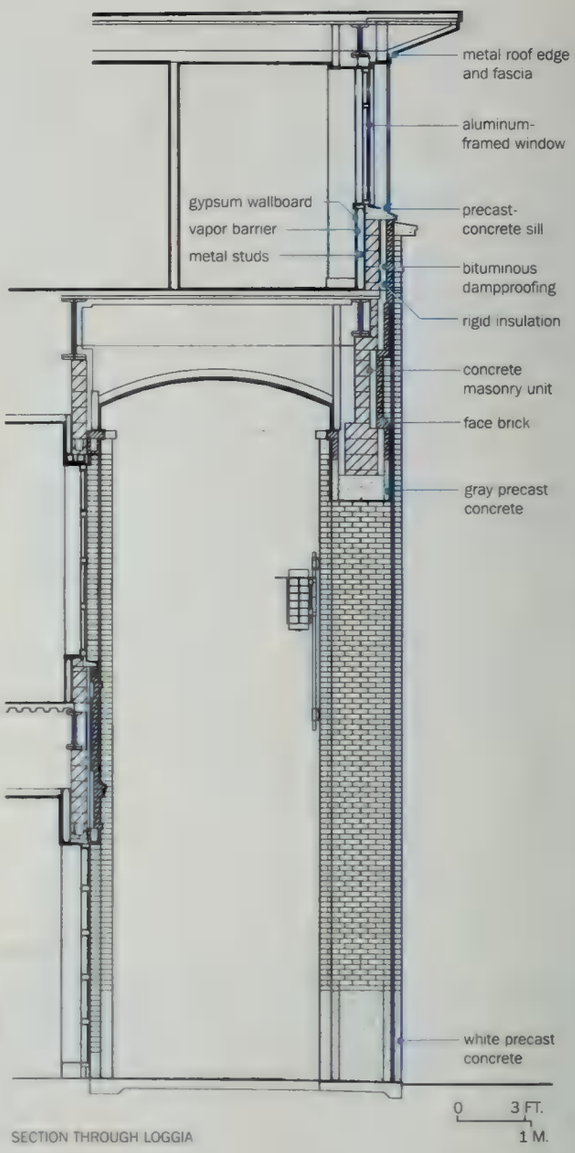




1. *Rotunda*
2. *Ballroom*
3. *Dining/meeting*
4. *Gymnasium*
5. *Pool*







SECTION THROUGH LOGGIA

The University Center's west-facing loggia will enclose the Cut with a quadrangle once the Purnell Center for the Arts is completed. The quad will also create a welcoming entrance for the university on Forbes Avenue (to the left in photo bottom), which it has not had. Dennis located numerous dining and meeting rooms behind the loggia, assuring that it would be an active space.





Dennis counters the monumentality of the two-story-high loggia with a delicate, glazed bay window.



The rotunda hall (this page and opposite top) and surrounding spaces form the chief meeting places in the university.

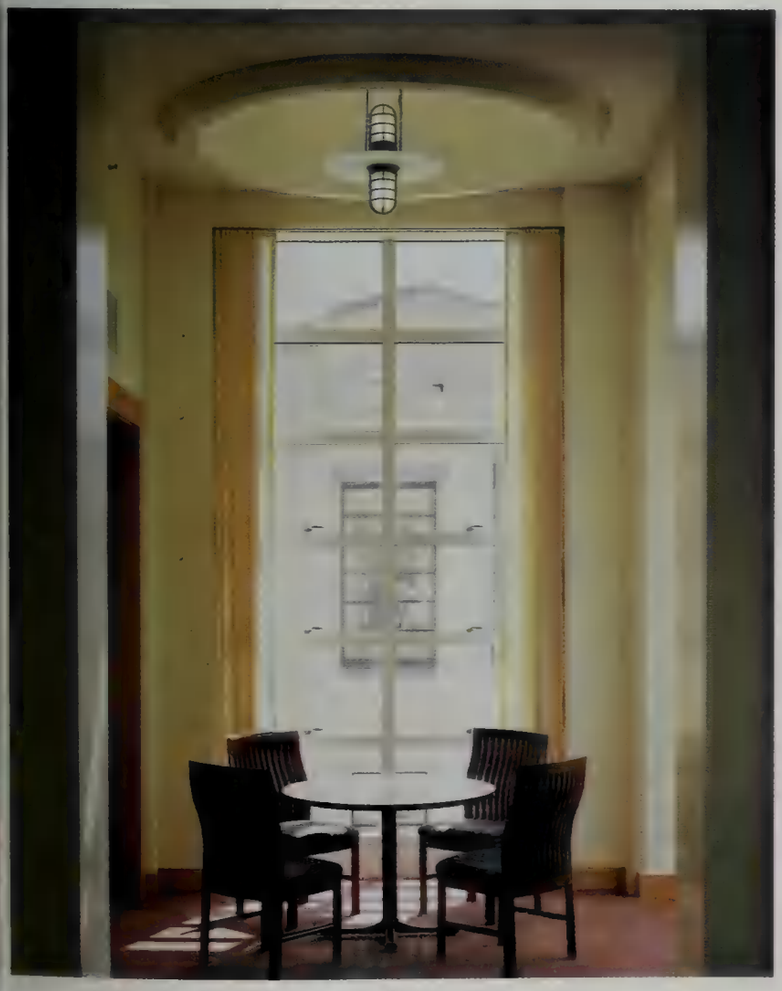
Within the University Center, Dennis's team orchestrated a sequence of spaces (section below), from the rotunda commons to ■ multipurpose space, an auditorium, and a ballroom. Meeting and dining rooms, most of which are located behind the loggia, reflect its tall proportions (bottom).

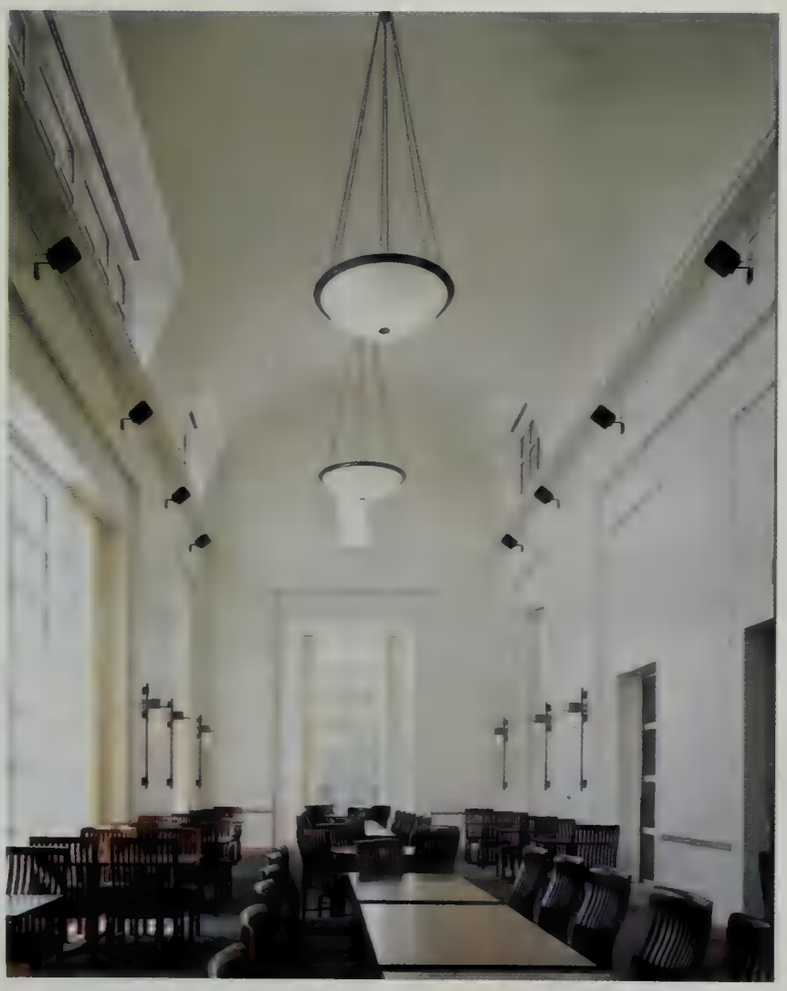


1. *Rotunda*
2. *Multipurpose*
3. *Auditorium*
4. *Ballroom*

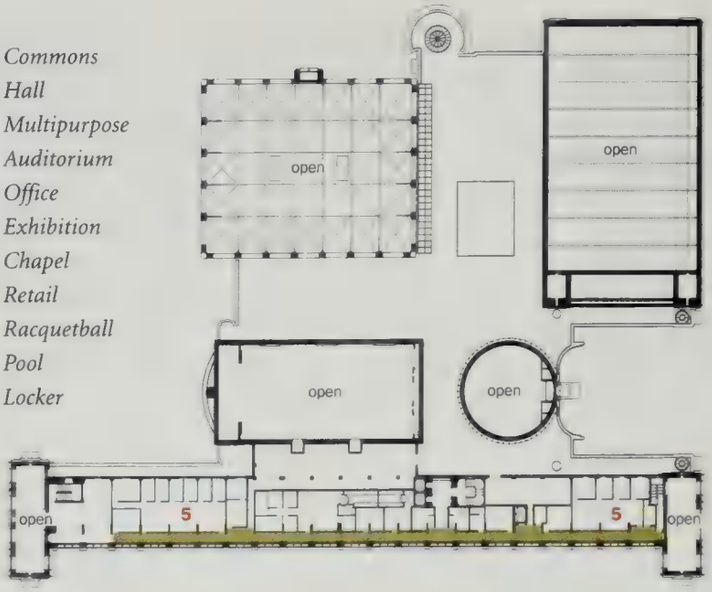


NORTH-SOUTH SECTION THROUGH COMMONS



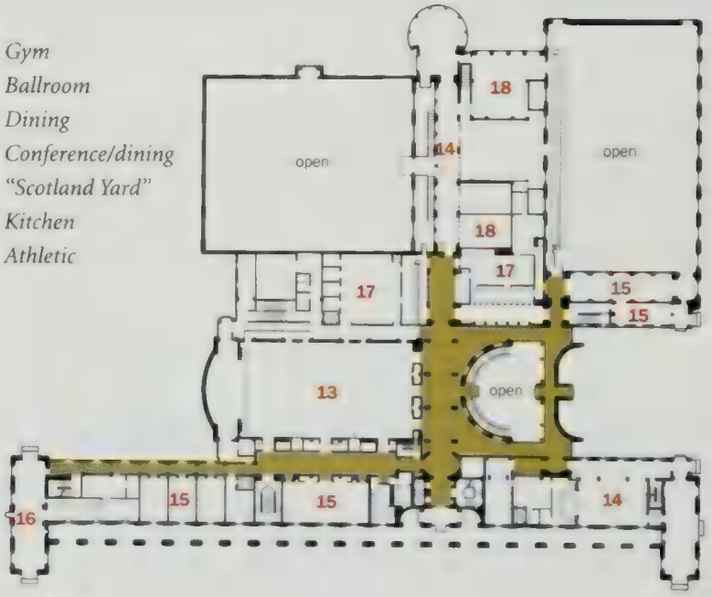


1. *Commons*
2. *Hall*
3. *Multipurpose*
4. *Auditorium*
5. *Office*
6. *Exhibition*
7. *Chapel*
8. *Retail*
9. *Racquetball*
10. *Pool*
11. *Locker*

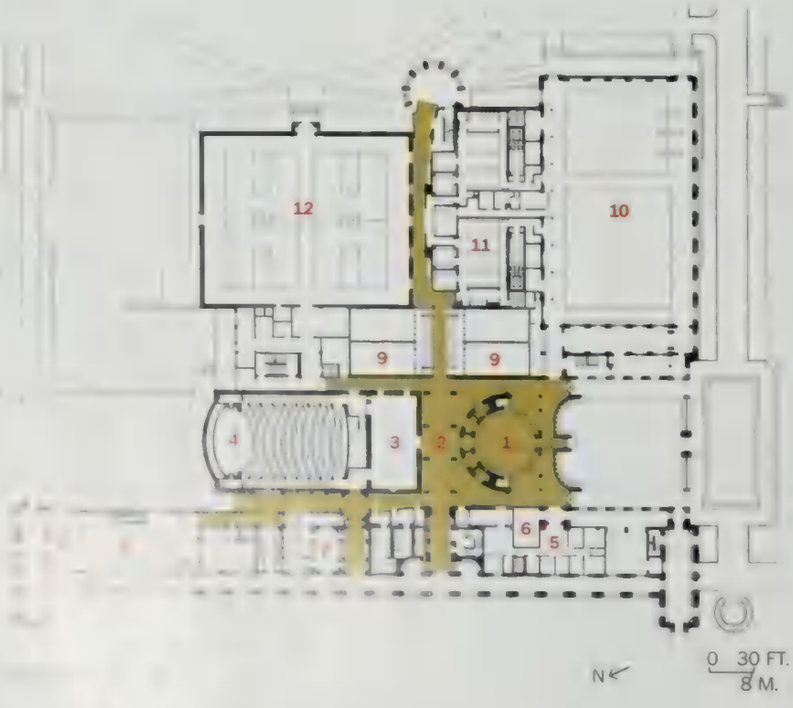


THIRD FLOOR

12. *Gym*
13. *Ballroom*
14. *Dining*
15. *Conference/dining*
16. *"Scotland Yard"*
17. *Kitchen*
18. *Athletic*



SECOND FLOOR









Dennis brings the idea of streets inside the buildings (plans and top photo opposite). In selectively revealing their structure, the gym (middle) and pool (bottom) evoke Hornbostel's approach.

The second phase is the $47million, 200,000-sq-ft University Center itself. Part student union, part gym, it mixes a wide range of uses and scales. On the basis of the first project, Dennis's firm (now Michael Dennis & Associates) is asked to proceed with design of the center, though this time it is structured as a joint venture with Pittsburgh-based UDA Architects. Dennis credits Patrick Keating, now Carnegie Mellon's vice president of business and finance, for his tenacity in keeping the master plan on track through the years. According to campus architect Paul Teller, "The plan might easily have been scuttled had not [current president Robert] Mehrabian, counseled by Keating, respected the work of [former president] Richard Cyert." The center is occupied in 1996.

Urbanistically, the building completes the east campus athletic quadrangle by placing the gymnasium on the main axis of the field. It establishes one side of a new quadrangle by defining the east edge of the Cut with an open public loggia. And it makes a wall to enclose another outdoor space that fronts on Hornbostel's Margaret Morrison Hall. Dennis brought the idea of streets inside, expressing the large program elements as discrete volumes wrapping a rotunda.

According to Teller, the center has totally changed the social culture of the campus, bringing a "badly needed sense of comfort and ease." Without duplicating Hornbostel's details, Dennis has imposed on the elevations basic classical proportions, both horizontal and vertical, drawn from the facades of Morrison Hall and the College of Fine Arts. Roof and cornice heights align, and the proportions of bays, pilasters, and window openings are similar.

1996-1999 CMU considers five firms, including Dennis's, for the Purnell Center for the Arts, the final piece of the master plan. To win the commission Dennis assembled a new team, adding Damianos + Anthony, of Pittsburgh, and John Sergio Fisher, a theatrical-design specialist with long ties to CMU. After such a successful association, "I was hysterical at having to interview once again," comments Dennis. But he wanted to complete the center. The joint venture, now called DDF Associates, won the project. Teller explains, Dennis "helped to crystallize what was in the back of the peoples' minds who had come to appreciate Hornbostel."

Though he has done about $100 million of work on this campus, Dennis still hopes the university will complete the extension of the old ravine he first proposed in 1987. It would return "something of the geological and ecological system of the area," he says. "It's part of the persona of the place." Indeed, Dennis's intentions throughout have been to divine and interpret this persona. "You grow up as a student wanting to be au courant and on the edge," he explains. "You realize that when you have to build next to somebody like Hornbostel, you forget all that stuff." ■

Manufacturers' Sources

Brick: *Stone Creek*

Aluminum curtain wall: *Wausau metals*

Precast concrete: *Cast Con*

Terne-coated stainless steel: *Follansbee Steel*

Hardware: *Best (locksets); Stanley (hinges); LCN, Rixson (closers);Von Duprin (exit devices); Rockwood (pulls); Locknetics (security devices)*

Acoustical ceilings: *Armstrong, Wireworks*

Ceramic tile: *Daltile*

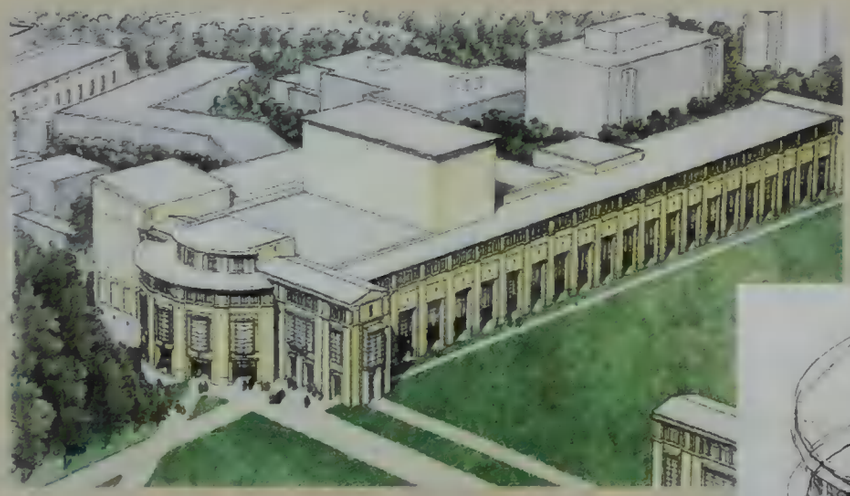
Paints: *Pittsburgh Paints*

Furnishings: *Knoll, Cartwright, Peter Pepper Products, Hussey, Community, Kimball, Ag1, Leland, K1, Loewenstein, Versteel*

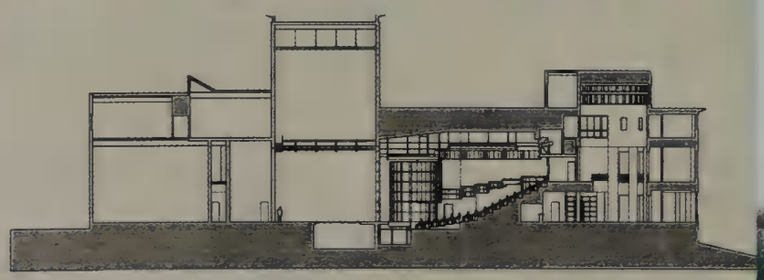
Lighting: *Forum, Lightolier; Blackbird Systems (controls)*

FUTURE

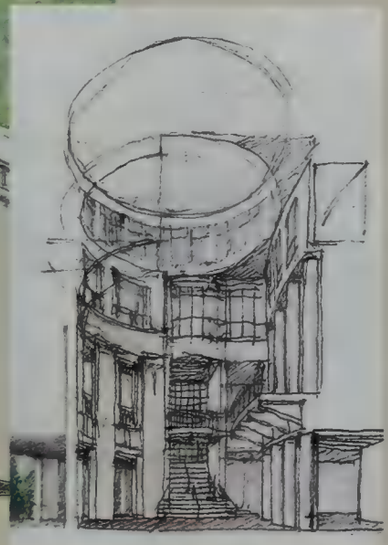
Last piece of the master plan puzzle: The Purnell Center for the Arts will provide new facilities for the drama department and a large art gallery. The major elements in the $24.6 million, 90,000-sq-ft project are a 450-seat theater, a 500-seat recital hall, a common public lobby, classrooms, practice rooms, faculty offices, and work spaces. Its form completes the quadrangle begun by the University Center, and includes a matching open loggia. Key faculty members lobbied for a unique-looking freestanding object that architecturally proclaimed its purpose. But Dennis's team won this third commission because CMU's officials, led by former president Robert Mehrabian, found the master plan's unifying strategy persuasive. —*M.F.S.*



The apsidal entrance pavilion may one day project into a picturesquely landscaped ravine—if Dennis can convince officials to re-excavate the Cut.



NORTH-SOUTH SECTION



Two California campuses: two different worlds

ANTOINE PREDOCK spans the spectrum with a new building for each.

by Karen Stein

While commissions for new buildings at Stanford University and the University of California, Santa Cruz (UCSC) would seem to offer much in common, the campuses, and the results, are worlds apart. Stanford's original master plan by Frederick Law Olmsted depicted a Romanesque enclave—a vision receiving fresh interpretation by Antoine Predock, among other architects currently completing projects there. UCSC, with its diverse styles of architecture, is best known for its spectacular landscape, and Predock was given a prime parcel at the edge of the "great meadow."



The Music Center at the University of California, Santa Cruz.


Stanford Un ers s
Center for Integrated



West of Stanford's historic heart, the Predock addition is part of a new new science and engineering quadrangle based on the principles of original campus planner Frederick Law Olmsted. Members of the university's architect-selection committee found the competition entry's massing and materials in keeping with the main quad.









STANFORD

"Why me? Are you sure?" That's what Antoine Predock remembers asking David Neuman, Stanford University's campus architect, when he contacted Predock in 1993 about participating in an invited competition for an addition to the school's Center for Integrated Systems (CIS). It's not that the Albuquerque, New Mexico–based architect doubted his ability; after all, several of his academic projects had already opened around the Southwest to considerable acclaim. But Stanford's reputation for traditional architecture seemed decidedly at odds with a practitioner who has been branded an architectural outlaw since the late 1980s for his far-flung references—from UFOs to geological excavations. Neuman assured Predock that Stanford was looking at alternative interpretations of its historic heart, with a master plan by Frederick Law Olmsted and Romanesque buildings by Shepley, Rutan & Coolidge.

Somewhat reassured, Predock participated in the competition, still feeling, he says, "stylistic pressure." While working on the design, he imagined a massive stone block with windows and balconies recessed into

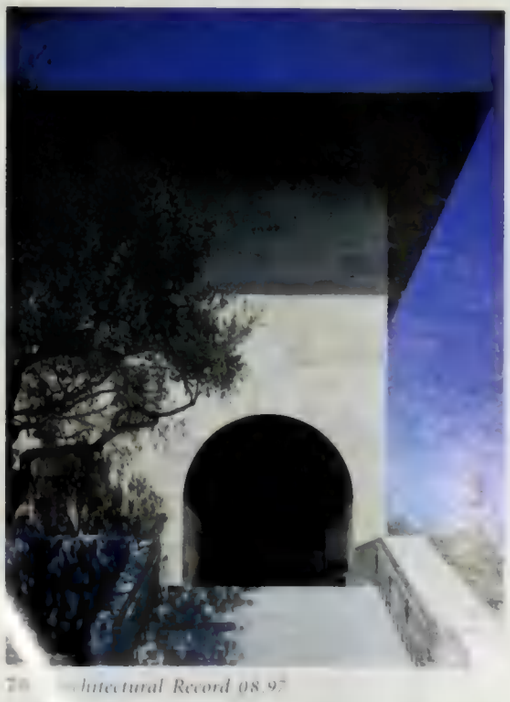
THE DESIGN CAUGHT EVERYONE, EVEN ITS ARCHITECT, BY SURPRISE.

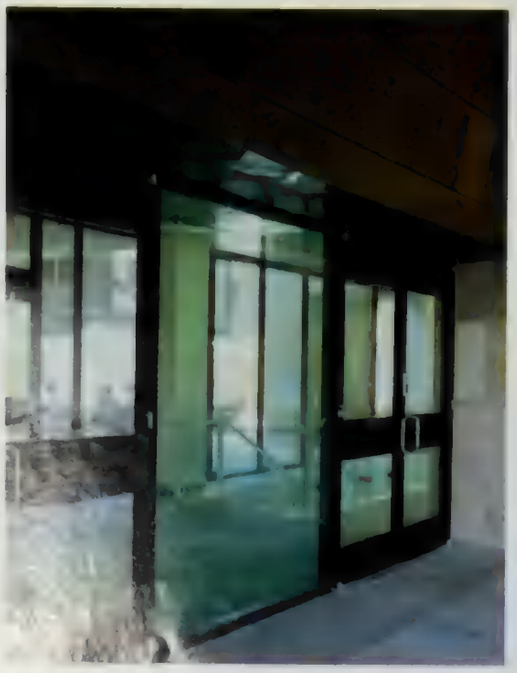
the huge form as the expression of the internal pressures of the program. The design he presented to the architect-selection committee, which closely resembles what was ultimately built, caught everyone, including its designer, pleasantly off guard. "I was surprised at the solution as it evolved," admits Predock. "Site specificity starts at ground zero," he says of his strategy of relating his projects to an intensive, if unorthodox, study of their place. "In this case, during the investigation there was a short circuit—a shunt—to the aura of Stanford." Neuman agrees. Asked why this building doesn't resemble other Predock buildings at campuses as varied as Arizona State University and the University of California, Santa Cruz (following pages), Neuman says: "Because it's at Stanford."

Knitting the now-sprawling campus together while at the same time guiding its rapid expansion is Neuman's dual task, shared in part by Predock's 53,000-sq-ft structure. Since coming to Stanford in 1989,

Project: *Paul G. Allen Center for Integrated Systems Extension, Stanford University Stanford, California*
Architect: *Antoine Predock Architect—Antoine Predock, FAIA, principal-in-charge; W. Anthony Evanko, AIA, Derek Payne, AIA, associates-in-charge; Mischa Farrell, AIA, project architect; Geoffrey Beebe, AIA, Mark Donahue, Paul Gonzales, Jennifer Lein, Robert McElheney, Lawrence Mead, John Morrow, George Newlands, Brett Oaks, Kira Sowanick, project team*
Engineers: *Brian-Kangus Foulk Consulting Engineers (civil); Rinne & Peterson (structural); Gordon Prill, Inc. (mechanical); Complere Engineering (plumbing)*
Consultants: *Joni L. Janecki & Associates (landscape); WHL Architects (laboratory)*
General Contractor: *DPR Construction, Inc.*







The arched entry (far left) with a copper lining that continues inside (opposite right) defines the edge of the narrow site, visually connecting the Predock structure to a new building by Robert A.M. Stern Architects (above). A courtyard between the addition and the existing structure admits daylight to the central stairwell (near left and opposite left).

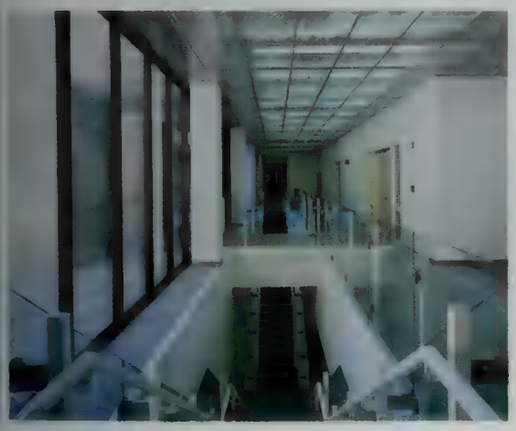


SECTION



1. *Covered entry*
2. *Lobby*
3. *Courtyard*
4. *Auditorium*
5. *Faculty*
6. *Laboratory*

GROUND FLOOR PLAN





According to James Gibbons, dean of engineering, the building's floating roof and deeply recessed windows "give it a sense of both shelter and internal community."

Neuman has stressed the importance of the campus' landscape plan. "You have to have a commonly intelligible vision," he says of his effort to regulate patterns of growth. "You could have the best buildings, but if you lose order it's not a campus." Toward that end, the placement of Predock's building to the north of the existing CIS, designed in 1984 by Ehrlich-Rominger, was part of an overall effort to define the edge of a pedestrian axis along what will soon be Serra Mall, a science and engineering quadrangle with buildings by Pei Cobb Freed & Partners. The squat, arched frontispiece along the mall is Stanfordian, with its Indian sandstone echoing the honey tones of the original stonework. But within the barrel vault another architectural world emerges: a copper lining hung from the concrete form pokes through openings on the north side to show a hybrid image of old and new to the campus' loop road, a primary traffic artery beyond Serra Mall.

Helping to define the pedestrian mall is another Stanford newcomer, the Gates Computer Science Building by Robert A.M. Stern Architects [RECORD, July 1996, pages 66–71]. In an outward display of the academic link between the respective disciplines—Predock's building is for hardware research, Stern's is for software—the buildings not only share the arched forms, but also striking roof profiles and deep overhangs, with one notable difference. Predock used copper instead of the typical red clay tiles. "I couldn't do it," he says of the roofing tile. At night, when the building's lights are on, a 9-in.-high rim of glass makes the roof appear to float above its masonry mass. "The vault looks somewhat conventional as you approach [from the east], but then you see that the roof looks like it's floating. I thought it was important to respond to the character of Stanford—but with a twist," says Predock. The dual effect of the CIS addition—fitting in and standing out—suits Neuman. Having weathered the 1989 Loma Prieta earthquake, which caused some $160 million worth of damage mostly to Stanford's older structures and the construction of a business school facility on the previously untouched oval forecourt to the main campus, Neuman tries to maintain the past while inserting Modernist additions where appropriate (including an upcoming Norman Foster medical school building). He says, "Infill and recovery strategies are what interest me most."

Manufacturers' Sources

Indian sandstone: *Columbia Stone*
Copper flat-seam roof panels: *County Sheet Metal*
Aluminum windows, entrances: *Arcadia Norcal*
Glazing: *PPG (Solex)*
Metal, wood doors: *Minton Door Co.*
Acoustical ceilings: *Spacetone*
Resilient flooring: *Armstrong*
Exterior lighting: *Devine Lighting*
Interior lighting: *Lightolier*

An environmental impact report was prepared prior to design of the Music Center at the edge of UCSC's "great meadow."

The four-acre site lines the "great meadow" (top and right), overlooking the Pacific Ocean. Phase two is planned for completion in 1998 on a site to the southeast of the recital hall (below). It will include additional music studios and offices.







UC SANTA CRUZ

If Stanford's central visual identity—and sacrosanct space—is its historic heart as envisioned in the master plan by Frederick Law Olmsted, then the central space of the University of California, Santa Cruz (UCSC) is the "great meadow," with its rolling hills of tall grass that command views of Monterey Bay and the Pacific Ocean. Asked to design a new home for the music department, which had previously shared space with the theater arts department, Predock was presented with the only logical site within the expanding performing arts complex: a narrow, four-acre swath along the edge of the meadow, one of the few open spots on its perimeter. "It's where you would want to build your house," says Antoine Predock of the dreamlike setting.

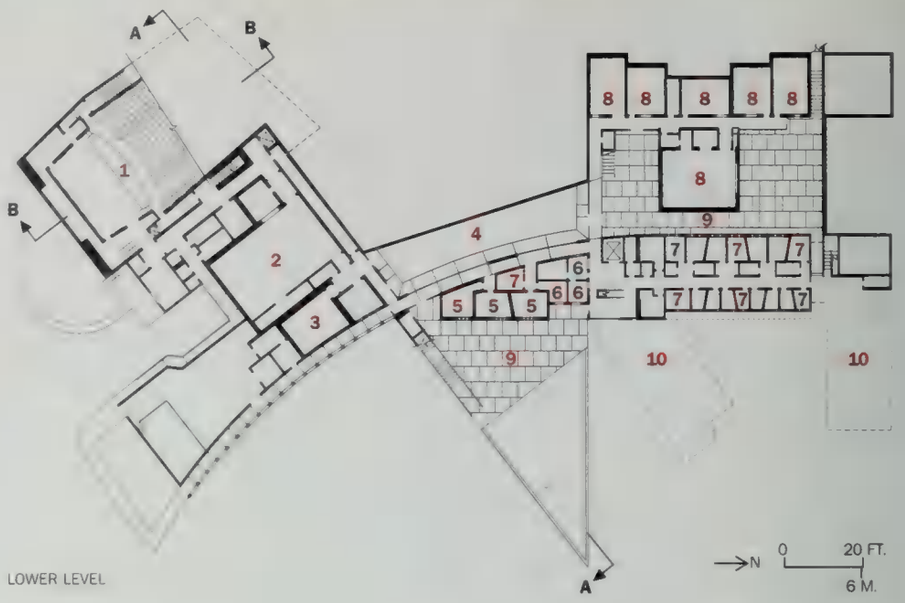
For Predock the first thing that was clear was what his design

"I WANTED TO HUNKER IT DOWN . . . SO THE BUILDING WOULD PEER OUT."

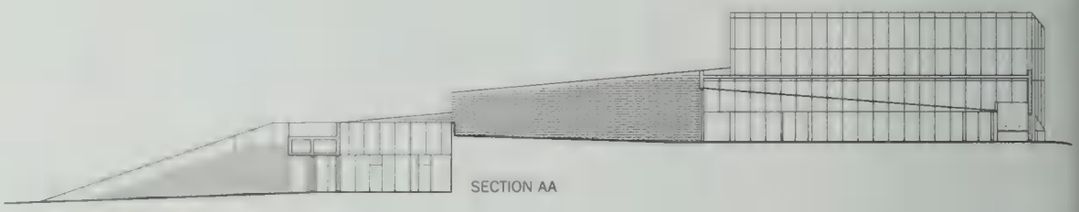
should *not* do. "I did not want to insert an intrusive profile," he recalls of his first reaction to the project. "I wanted to hunker it down, excavate the site, so the building would peer out," he explains. The building, in fact, does hug the edge of the meadow; a colonnade fronting teaching studios curves like an earth berm as if to gather up the parcel. While Predock was able to take advantage of a natural change in grade and step the building mass down into the descending crest of the hill, the centerpiece of the music center's program—a 400-seat recital hall—is by its nature massive and hard to cloak. Predock treated the form like a giant boulder, which he placed at the northwest end of the 49,000-sq-ft composition, constructed of cast-in-place concrete tinted to match the yellowish green grass. It will

Project: *Music Center, University of California, Santa Cruz*
Architect: *Antoine Predock Architect—Antoine Predock, FAIA, principal-in-charge; Devendra Contractor, AIA, project architect; Geoffrey Adams, Jon Anderson, AIA, Sunil Bald, Jorge Burbano, Phyllis Cece, AIA, Mark Donahue, Cameron Erdmann, AIA, Mischa Farrell, AIA, Lorraine Guthrie, Katharine Howe, Karen King, AIA, Robert McElheney, George Newlands, Timothy Nichols, Brett Oaks, Christopher Romero, Alcides Santiesteban, Deborah Waldrip, Suzanne Weisman, Jeffrey Wren, project team*
Engineers: *Paragon Structural Design, Inc. (structural); JBA Consulting Engineers (mechanical, electrical, plumbing); Chavez-Grieves (civil)*
Consultants: *Joni L. Janecki & Associates (landscape); McKay Conant Brook, Inc. (acoustical); Landry & Bogan (theater)*
General Contractor: *Lewis C. Nelson & Sons*

1. *Recital hall*
2. *Ensemble rehearsal*
3. *Percussion studio*
4. *Ravine*
5. *Teaching studio*
6. *Office*
7. *Practice room*
8. *Classroom/ laboratory*
9. *Courtyard*
10. *Future addition*



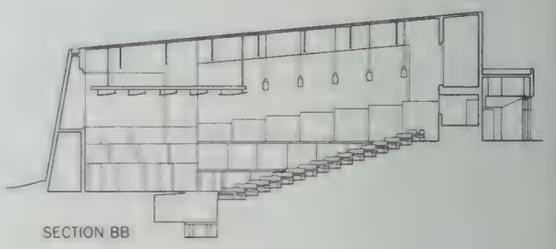
LOWER LEVEL



SECTION AA

Contoured wood walls around the stage and an adjustable canopy of panels allow the recital hall to be tuned to different music styles (right).





SECTION BB







Exterior concrete block is split face (opposite bottom). Interior block is sandblasted (left in photo below).

be gradually surrounded by the redwood trees that line the meadow "so it's not quite as naked," says the architect.

In fact, the trees play a significant role at UCSC, providing context and design latitude. "We try not to have one style [of architecture]," explains David Tanza, AIA, UCSC's project architect, of the range of buildings that have been constructed on the campus in recent years. "We have the luxury of the redwood trees. We can have varied buildings, because the redwoods tie them together." The landscape is further integrated into the building by outdoor courtyards—exterior practice and meeting areas, some with patches of transplanted meadow—and narrow walkways that are intended to echo the ravines found on the campus.

While the preciousness of the meadow dictated the siting and overall form of the building, the program of the music center determined its parts and pieces. "It's an instrument," says Predock of the organization of the plan. With the recital hall connected to teaching/faculty offices by a shared plaza, the overall image is one of a sequestered facility to create, study, and play music. Reinforcing that image is the construction of acoustically isolated practice rooms. Acoustician Ron McKay says each space is customized—from the "tunable" recital hall with an adjustable canopy of fiberglass-reinforced plaster panels and built-in "reverberation chambers" in the wall that can be covered by curtains, to practice rooms built as sheetrock inner boxes within concrete and stud-wall structural boxes to isolate sound vibration between adjacent spaces. One small detail was purposefully left out in some areas, reports Tanza: an extra layer of gaskets on the doors of the practice rooms in the student wing. He explains of the omission, "We thought it would be wrong if visitors walked down the hall of a music center and they couldn't hear the sound of instruments." ■

Manufacturers' Sources
Cast-in-place concrete: *Granite Rock*
Concrete masonry units: *Calstone*
Structural steel: *Bostrom-Bergen Metal Products*
Built-up roofing: *Johns Manville*
Aluminum windows: *Kawneer, Milco*
Aluminum entrances: *Kawneer*
Sound-control doors: *Overly*
Fixed seating: *American Seating*

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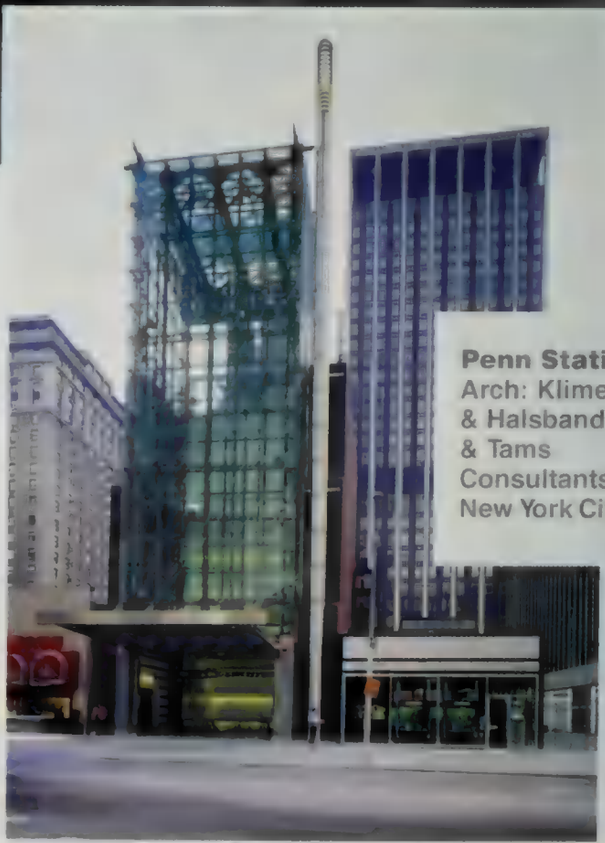
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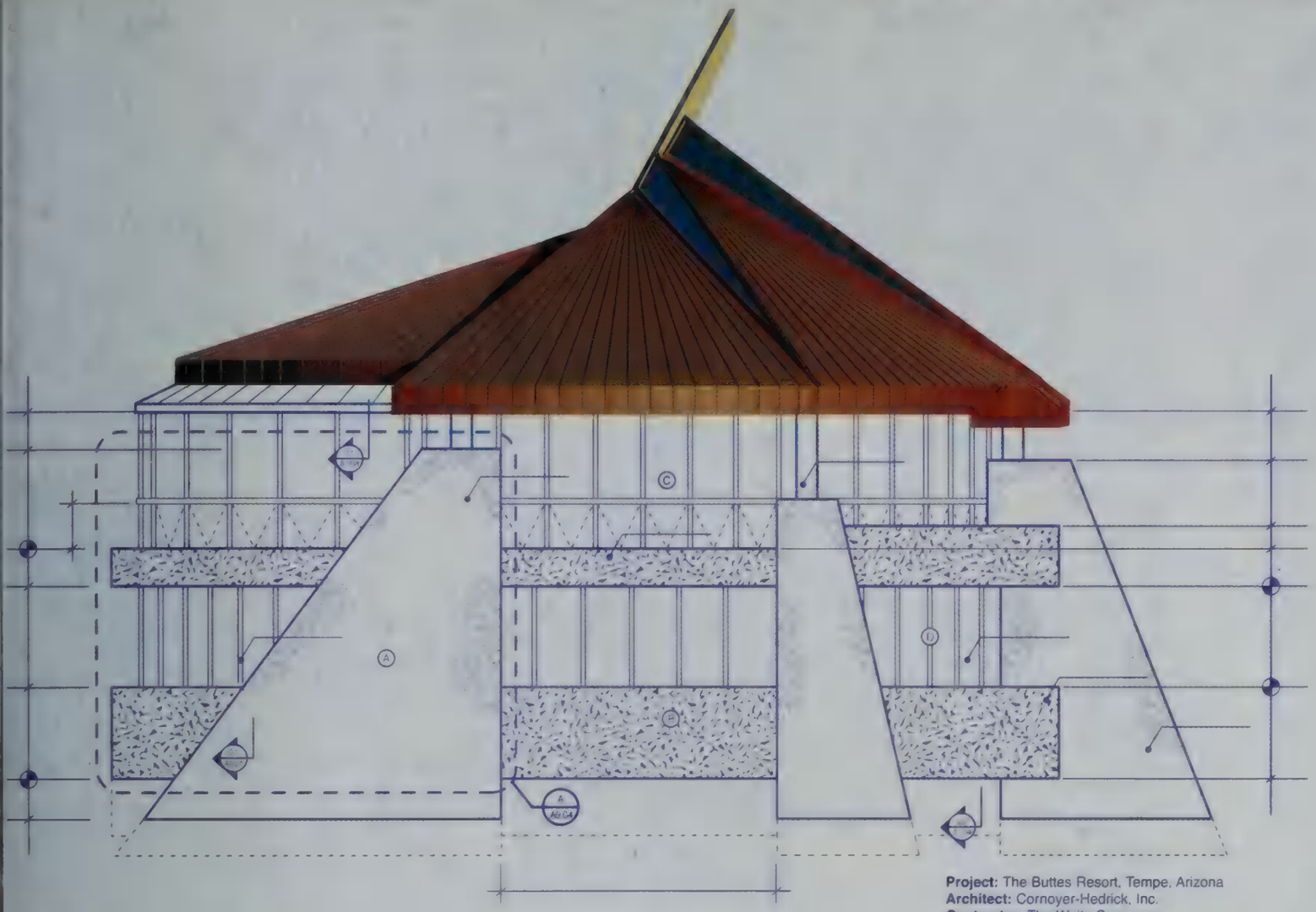
Penn Station
Arch: Kliment & Halsband & Tams Consultants
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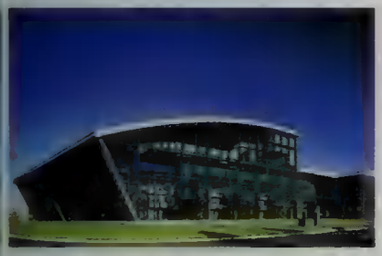
CIRCLE 27 ON INQUIRY CARD

INFRASTRUCTURE

Designing "Mitigation"

WHAT POLICYMAKERS CALL MITIGATION, WE CALL DESIGN. EITHER WAY, MORE ARCHITECTS TODAY ARE ASKED TO FIT INFRASTRUCTURE INTO COMMUNITIES.

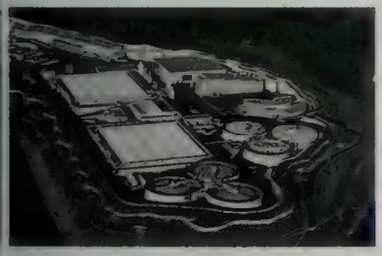
by Tom Ichniowski



1

Jamaica, New York

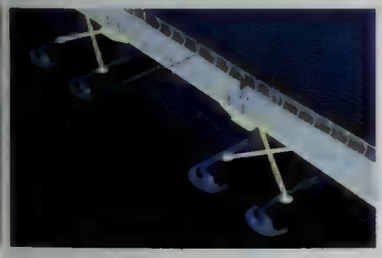
The Hillier Groups gives an airport's prominently located power plant a pleasing face.



2

Seattle, Washington

Angela Danadjieva has turned a sewage treatment plant, which might have been an eyesore, into a shoreline retreat.



3

London, England

An elegant pedestrian link, Future Systems' floating pontoon structure is a harbinger of the city's bridge-building boom.



4

Charlotte, North Carolina

Gantt Huberman's airy, vaulted shed packed with services solves problems common to sprawling all-bus transit systems.

In the field of infrastructure, architecture is increasingly a peacemaking art. Projects shown in these pages might be called "environmental mitigation," but in plain English they turn NIMBY nightmares into community-pleasers. The biggest infrastructure category is surface transportation. Tom Ichniowski considers the congressional battle over provisions of the new surface transportation bill that will affect not only commissions, but the architect's role in improving cities.—James S. Russell

On December 18, 1991, then-President George Bush and other officials gathered at a Texas construction site to celebrate the start of a new direction in federal transportation policy. The bill Bush signed that day, the Intermodal Surface Transportation Efficiency Act (ISTEA), not only sharply boosted the sums authorized for transportation projects (by far the federal government's largest capital-expenditure category), it expanded the definition of the sorts of projects that could be financed by federal transportation dollars. It also allowed state officials much more flexibility in using that money, particularly in shifting aid from highway funding categories to mass-transit uses.

Design firms have benefited from the law's transportation planning requirements and its Congestion Mitigation and Air Quality program (CMAQ), which funds projects aimed at reducing vehicle emissions by reducing traffic. Another key section for architects set up a new program called "transportation enhancement activities." For the first time it allowed federal transportation funds (mostly derived from gas taxes and other user fees) to support activities that make up for the deleterious effects of highways: pedestrian and bike paths, preservation or rehabilitation of historic transportation buildings, and archaeological planning and research.

On October 1, the clock will run out on ISTEA. Capitol Hill has been buzzing for months with plans to rewrite the statute and several bills have been introduced. Most reflect competing regional interests, focusing mainly on new ways of dividing the funds among states and programs.

The design linkage: fitting transportation into communities

ISTEA was supposed to improve urban livability by forcing states to choose projects and transportation modes according to need rather than

Tom Ichniowski is the Washington, D.C., bureau chief of Engineering News-Record.

according to what kind of funding was available. (Highway funding formulas have usually been more generous than those for mass transit, for example.) Elizabeth Deakin, associate professor of city and regional planning at the University of California at Berkeley's College of Environmental Design, says,"Probably the most challenging thing about ISTEA was the fact that metropolitan planning organizations [MPOs] were given somewhat more authority than they'd had before over the decisions being made on highways and on other kinds of projects in their own regions. And that of course caused a certain amount of dismay among some [state] highway departments." The requirement for metrowide regional planning should have made transportation planning more rational, since needs usually transcend rather than coincide with city and suburban political boundaries.

For architects, the law's planning provisions "gave firms the option to be much more creative about the kinds of facilities that could be done," Deakin says. The planning bodies were instructed to consider at least 15 factors in their plans, including preserving existing roads, bridges, and transit lines; relieving congestion; considering a project's impact on land use; and taking note of the "social, economic, energy, and environmental effects of transportation decisions."

These planning initiatives have had varied levels of success. At first not all urban areas even had metrowide planning agencies; in others, highway-focused officials didn't take advantage of the planning flexibility allowed. A few, though, began to realize ISTEA's potential. Transit planners, for example, have long decried infrastructure planning and land-use patterns that encourage population dispersion, since sprawl increases congestion and makes transit inconvenient and uneconomical. Portland, Ore., sought funds from ISTEA's CMAQ category to reverse the traditional pattern by developing transit-oriented affordable housing projects. The idea was to encourage projects that include mixed uses and higher densities located near transit lines. Conversion of a former dairy plant into 85 apartments and 27,000 sq ft of retail space was one of the first tests of the idea. The paperwork connected with actually using ISTEA funds proved too daunting, but Portland hopes to proceed with other similar projects, including the use of a revolving fund to acquire land for future transit-oriented development projects.



...on of light rail, bus... ...and bike trails as co... ...estion relief for the ... Aspen, Colo.. area (above). The plan was developed by Otak, a company based in Lake Oswego, Ore.

Portland also tapped CMAQ to help finance an experiment on whether improving pedestrian access to transit can lead to a rise in ridership. Bill Hoffman, manager of the city's Pedestrian Transportation Program, says, "We focused on those people, 'trace riders,' who use cars but live along major transit networks." Tom Lister, landscape architect on the project, says the biggest problem in the study areas was a forbiddingly wide and bleak four-lane street. The city is adding islands and curb extensions to improve access. "The program is probably going to help [ridership] a little bit, but there's no other data for us to refer to. We just don't know. It's totally experimental," says Lister.

A few other cities have been creative in the use of transportation funds for coordinating planning with infrastructure investment. The impact on the nation's built landscape, however, has been limited, observers say. The reason: much of ISTEA's money has gone to projects already planned, not new ideas. Deakin notes that "it takes five to seven years to move things through the pipeline." Skidmore, Owings & Merrill partner Marilyn Jordan Taylor, AIA, a transportation expert, agrees, explaining that most of those projects were roads. An ISTEA successor, she argues, might make possible projects that would make a real difference to communities, such as New York City's long-dreamed of plan for a rail link between Pennsylvania Station and Grand Central.

The law's planning provisions have benefited multidiscipline design firms such as Philadelphia-based Wallace, Roberts & Todd. WRT's biggest project, says Anish Kumar, an associate at the firm, has been an urban design feasibility study for three transportation hubs along a light-rail line in New Jersey's Hudson and Bergen Counties. Kumar notes that planning "feeds into our design process." The firm's studies led to its being hired to do urban design guidelines for the whole 20-mile route. The handbook is consistent with ISTEA's emphasis on community involvement, Kumar says. The new ISTEA is expected to continue to stress planning. But there may be modifications. Marcia Frenz, AIA's program director of federal affairs, favors retaining planning provisions. "They certainly can be streamlined," she says.

When is an "enhancement" a boondoggle?

Another key element of ISTEA are so-called enhancements. ISTEA set aside 10 percent of its Surface Transportation Program category and a portion of other funding categories for projects intended to mitigate problems associated with road-building. The pro-enhancements Rails-to-Trails Conservancy says that as of February, $2.1 billion in federal ISTEA funds plus $821 million in local matching aid have financed 7,321 projects. Bike and pedestrian facilities account for the largest portions, 43 percent of the projects. But there also have been 873 historic transportation facility projects and 462 other historic-preservation projects.

While amounting to less than two percent of the $155 billion authorized by ISTEA, that isn't small change for firms that design and build the projects. Dallas-based Corgan Associates has worked on adaptive reuse of the Monroe Shops, where repairs were done on trolleys that ran on the area's long-gone interurban system. The building, which sits at one end of the Dallas Area Rapid Transit modern light-rail line, will be converted to multiple uses, including a transportation museum that will house an old trolley, says Lyle Burgin, a Corgan principal. Similarly, both congestion-relief and historic-preservation ends were served by the enhancement-assisted Big Four Depot project in Lafayette, Ind. (opposite top).

With ISTEA assistance, ■ congestion-inducing rail line was moved out of downtown Lafayette, Ind. As part of the work, HNTB moved this station (below), restored it, and added a park and bikeway link.





Enhancement projects that stretch the definition of "transportation" have provided ammunition for ISTEA foes. A July 1996 U.S. General Accounting Office report mentioned a $4.3 million plan to rehabilitate grandstands at the Iowa State Fair, funded in part with federal enhancement aid, and the purchase and renovation of the Oddfellows' Building in Griffin, Ga. "We're subject to sort of murder by anecdote," says Roy Kienitz, deputy director of the pro-enhancements Surface Transportation Policy Project. While he concedes that "some wacky projects have been funded," he adds that guidance issued in 1995 by the Federal Highway Administration has largely eliminated boondoggles.

Congress at loggerheads over Fed's biggest building program

How will enhancements, planning, and the congestion-mitigation program fare in the new ISTEA bill? A broad coalition, including the AIA, the National Trust for Historic Preservation, the Rails-to-Trails Conservancy, and the Surface Transportation Policy Project, is lobbying to retain these elements of the surface-transportation bill, promoting their economic and environmental advantages. Supporters would also like to see total funding grow, which would increase the enhancement dollars.

PRIMARY FEDERAL TRANSPORTATION FUNDING PROPOSALS

PROPOSAL	$ PROPOSED	ENHANCEMENT	COMMENTS
ISTEA INTERMODAL SURFACE TRANSPORTATION EFFICIENCY ACT	$157 BILLION/ 5 YEARS	47% INCREASE	EXTENSION OF EXISTING PROGRAM. AIA SUPPORTS
NEXTEA NATIONAL ECONOMIC CROSSROADS TRANSPORTATION EFFICIENCY ACT	$175 BILLION/ 6 YEARS	30% INCREASE	CLINTON ADMINISTRATION BILL
HOTEA HIGHWAY ONLY TRANSPORTATION EFFICIENCY ACT	$34 BILLION/ YEAR	$9 BILLION COVERS PUBLIC TRANSIT AND OTHER EXPENDITURES	HIGHWAY USERS' BILL
STEP 21 STREAMLINED TRANSPORTATION EFFICIENCY PROGRAM FOR THE 21st CENTURY	DEPENDS ON RECEIPTS	9% INCREASE	STATES TO RECEIVE NO LESS THAN 95% OF GAS TAX RECEIPTS THEY CONTRIBUTE. VARIATIONS PROPOSE ADJUSTMENTS THAT FAVOR CERTAIN STATES.
DEVOLUTION	NA	NA	MAKES STATES RESPONSIBLE FOR NEARLY ALL HIGHWAY FUNDING

The programs have the strong backing of the U.S. Dept. of Transportation (DOT), says Deputy Secretary Mortimer L. Downey. DOT's reauthorization proposal, dubbed National Economic Crossroads Transportation Efficiency Act, or NEXTEA, hikes CMAQ funding by 30 percent and increases the Surface Transportation Program account by 46 percent, to $175 billion over six years. "And planning is also supported" in the bill, says Downey. It retains the enhancements set-aside from that account, which means a hefty increase, mainly because the concept has gained friends in local communities. He recently spoke to the Tennessee Municipal League, "And people were grabbing me by the sleeve and saying, 'Am I going to get my bikeway? Am I going to get my project?'" Such grassroots support, he says, will help get ■ "good bill through."

Lined up against these provisions are the formidable forces of the highway lobby, including the American Highway Users Alliance (AHUA) as well as other groups that have formed the Transportation Construction Coalition. William D. Fay, president of the AHUA, says that even with the increase under ISTEA, current funds fall about $20 billion short of the amount needed simply to maintain current conditions. He says, "When I'm looking at a seriously deteriorated road system, one that's failing to meet the safety standards that we really want, it's hard for us to say that we should be forcing money to be spent on train-depot restorations and other things that are nice, but may not be priorities right now."

Early on, the coalition sought to eliminate enhancements in the new bill. Now it is arguing to knock out the set-aside, allowing enhancements to be eligible for federal transport aid, but not mandating that states fund them. This might seem a modest change, but Edward M. Norton, vice president of the National Trust for Historic Preservation, fears that if the set-aside is removed, the program "will be raided by the DOTs to the point where it amounts to nothing."

It is unlikely that Congress will have new transportation funding in place when ISTEA expires. The struggle is protracted because most of the user-fee source of ISTEA funds is free of the balanced-budget constraints that affect so many other programs. At press time, no measure had been approved even by a House or Senate subcommittee. ■

1 Cogeneration Plant Jamaica, New York

CLOSED TO THE PUBLIC BUT CENTRALLY LOCATED AT JFK AIRPORT, THIS POWER PLANT DISPLAYS ITS MECHANICAL PARTS FROM AFAR.

by Virginia Kent Dorris

Project: *Cogeneration Plant, John F. Kennedy International Airport Jamaica, New York*
Owners: *Gas Energy, Inc. and Community Energy Alternatives, Inc.*
Architect: *The Hillier Group—David Finci, AIA, project design principal; Dale Laurin, project architect; Matthew C. Salerno, AIA, project manager*
Engineers: *Thornton-Tomasetti (structural concept design); Energy Services Inc. and Parson Brinckerhoff (structural, mechanical, electrical, plumbing, civil)*
Consultants: *DeBellis & Semmens (landscape); David Mintz (lighting)*
General Contractor: *Crow-Jones*

Project Statistics
Size: *45,000 sq ft*
Cost: *$244 million*
Output: *100 megawatts of electricity*

"From the beginning, we understood this was an engineering-driven project," says architect David Finci, AIA, of the new cogeneration facility at New York's John F. Kennedy International Airport. By necessity, first priority went to meeting the technical demands of the massive turbines, boilers, and coolers that would produce the electricity, heating, and cooling used by the airport's 30 million travelers and employees each year.

Finci's task, as the architect for the Hillier Group, was to find forms and materials that would allow the enormous $244 million power plant to stand comfortably just a stone's throw away from Eero Saarinen's soaring TWA Terminal. Although few visitors to the airport will ever enter the cogeneration plant, its location at the center of the airport's complex of passenger terminals makes it a building that most everyone will see.

Adding to an SOM building

The project included renovating and expanding an existing heating and refrigeration plant, a 1957 glass-and-steel building designed by Skidmore, Owings & Merrill. It also called for the construction of a new 45,000-sq-ft cogeneration facility with two massive exterior heat-recovery boilers and two 120-ft-high exhaust stacks.

In a first for the Port Authority of New York and New Jersey, which owns and runs the airport, the design, construction, and operation of the plant were privatized in the hands of a consortium called Kennedy International Airport Cogeneration (KIAC).

Despite the facility's unglamorous function, the Port Authority wanted a building with an architectural presence. "That the level of design was consistent with existing and future design at the airport was critical to us. This was a nonpublic building in a very public setting," explains Robert Davidson, chief architect in the Port Authority's engineering department.

To maintain architectural control, the Port Authority stipulated that the cogeneration plant's design be approved by its architectural review board. As a result, KIAC hired the Eggers Group as architect. In

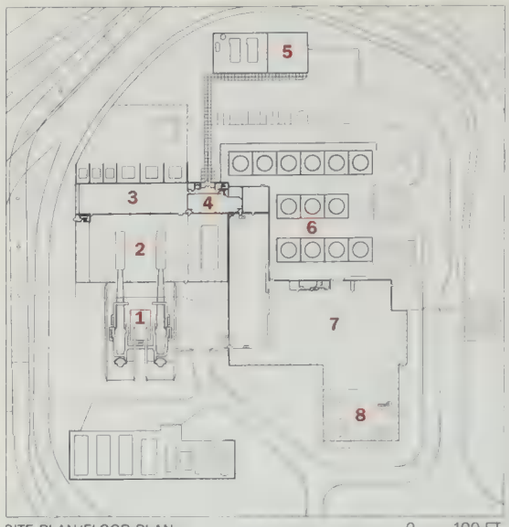


Prominently located on the loop road around JFK's terminal complex (opposite top), the plant is seen by most visitors. Curved roofs (left) allude to wings and flight. Two giant boilers are encased in a space frame (opposite bottom).

Virginia Kent Dorris is a writer based in Brooklyn, N[illegible] who covers architecture and [illegible]





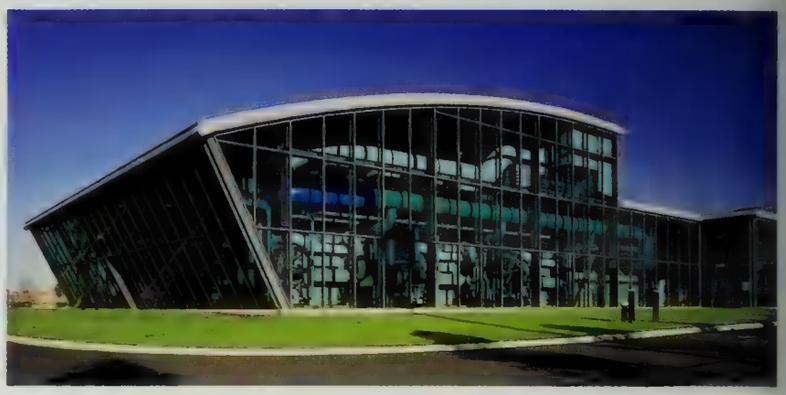


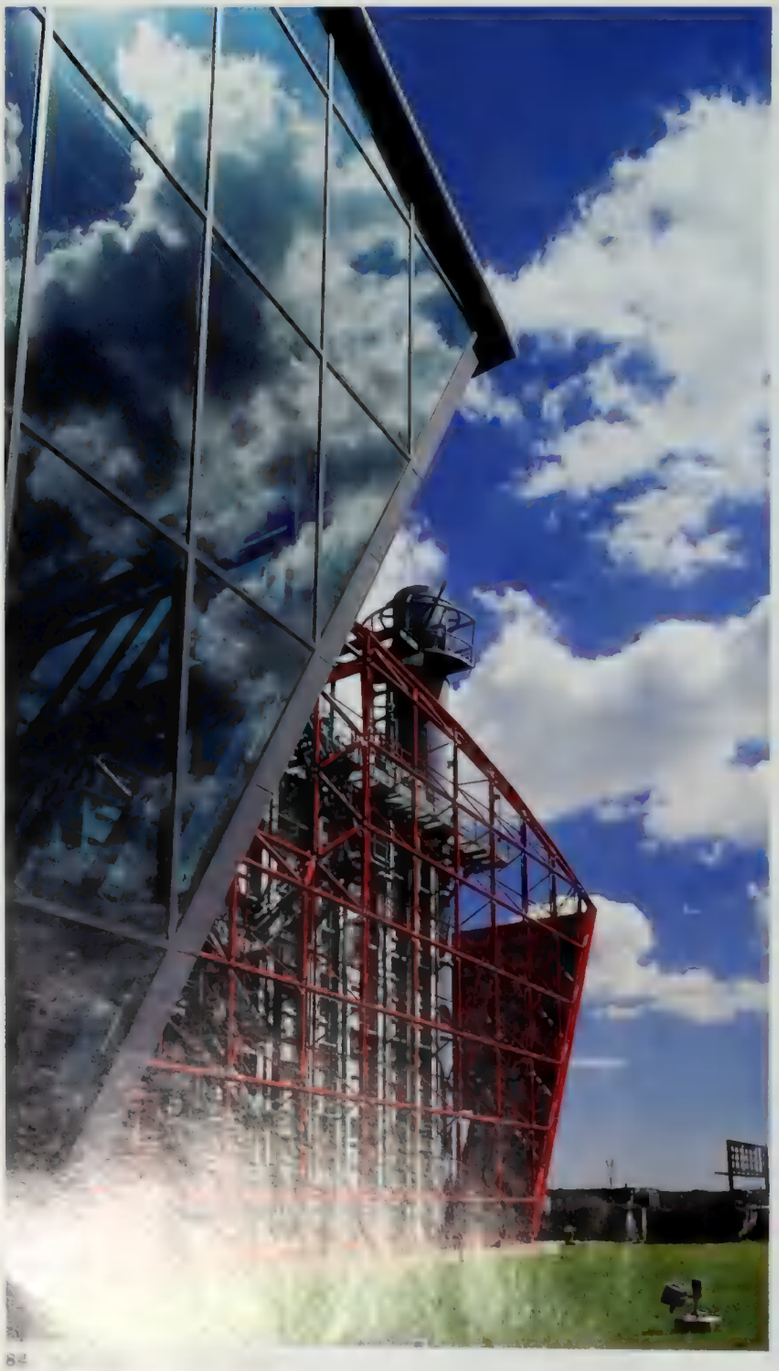
SITE PLAN/FLOOR PLAN

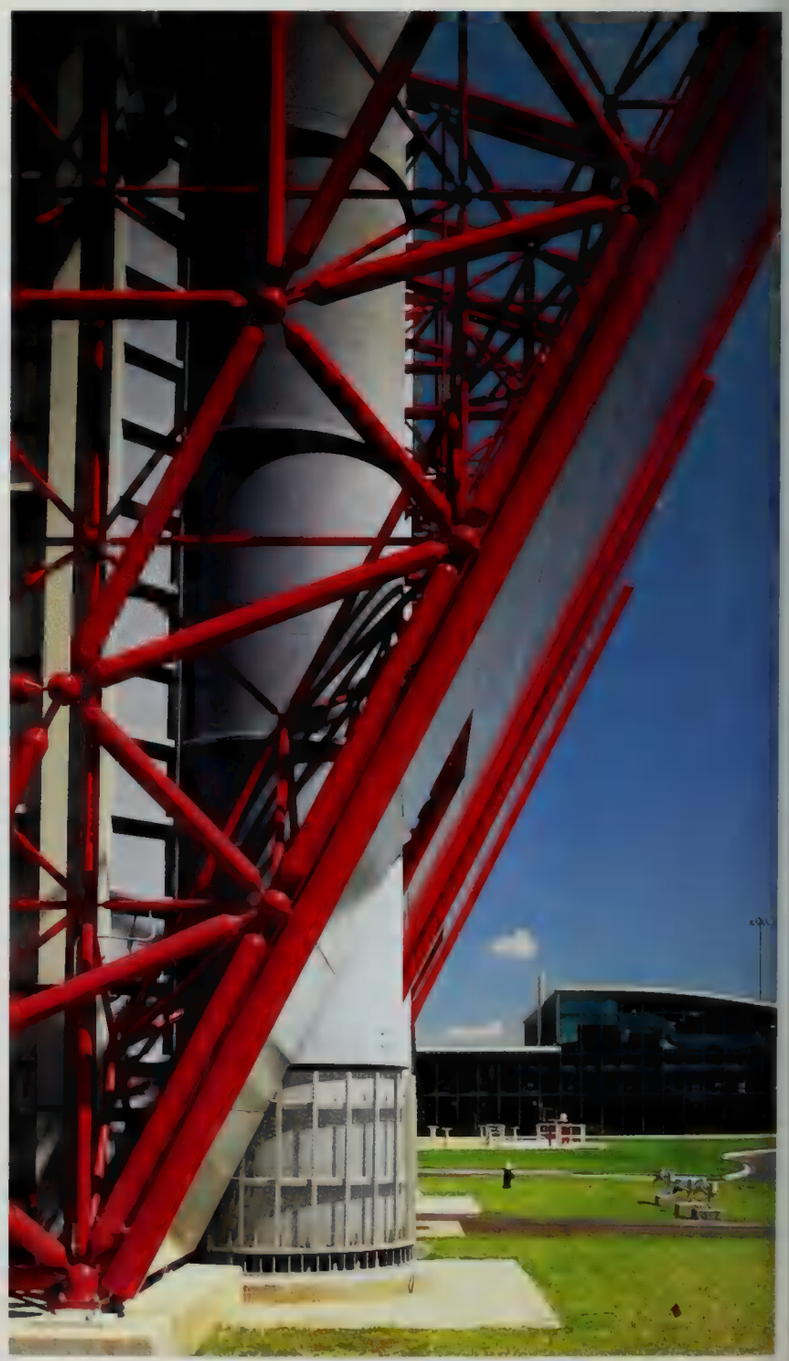
1. *Boilers*
2. *Turbines*
3. *Switchgears*
4. *Controls*
5. *Warehouse (unbuilt)*
6. *Cooling towers*
7. *Existing*
8. *Chillers*

Canted at a 60-degree angle, the tinted-glass walls reduce heat gain as well as the visual impact of the buildings (below and bottom).

The metal space frame wrapping some of the buildings was assembled from commercially available components to keep costs low.

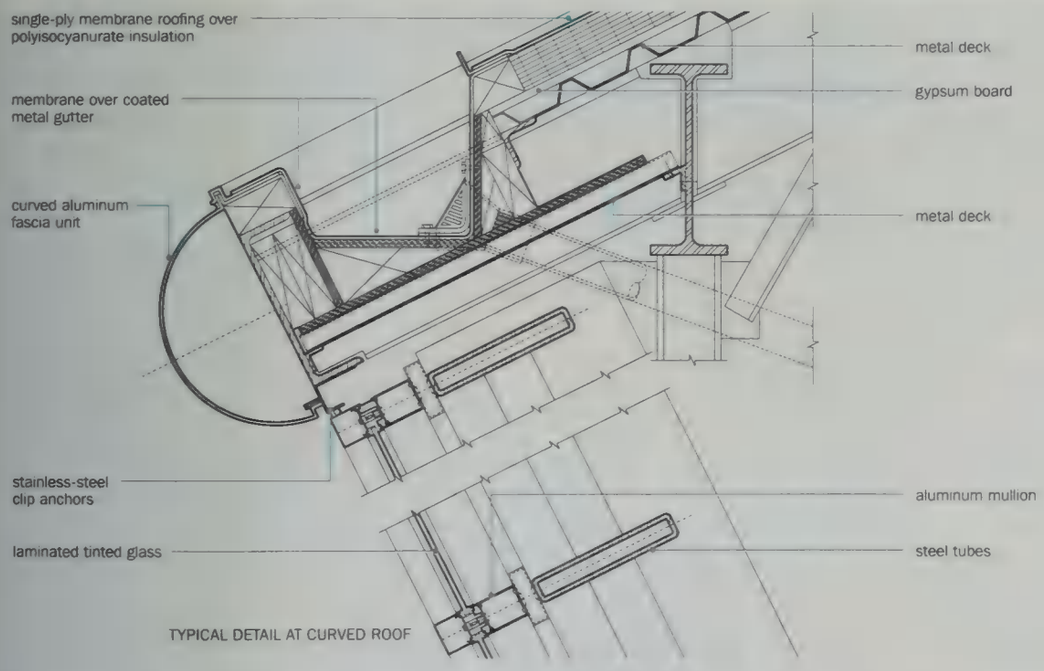








While accommodating the complex machinery was the top priority of the engineers and architects in laying out interior spaces, a color-coded system helps bring order to the techno-ensemble (left).



TYPICAL DETAIL AT CURVED ROOF

1994 the Eggers Group merged with The Hillier Group.

The private consortium had not originally envisioned hiring a design architect for the plant. Although David S. Milne, Jr., president and CEO of Gas Energy, Inc., one of KIAC's parent companies, initially thought a design architect would "cost us a lot of money," he estimates the "architecture" portion added "a couple of million dollars," only a fraction of a percent of the plant's total cost.

Early in the design process, Finci decided to celebrate rather than disguise the plant's industrial nature and consciously worked to show off its massive power-generating equipment. The resulting layers of glass, metal panels, and steel space-frame elements provide some direct and some reflected views of the massive, brightly painted equipment inside. "I didn't want to see the beautiful equipment enclosed. Why hide it?" says Finci.

The cogeneration plant produces 100 megawatts of electricity, enough to power a small city (or a 4,900-acre airport), with two huge gas-powered turbine generators that are—ironically—modified 747 aircraft engines. Power is distributed via four substations to the airport runways, roadways, terminals, and service facilities.

The hot and chilled water that is distributed underground to the terminals is produced by the plant's central heating and refrigeration equipment, which operates almost exclusively on waste heat extracted from the 900-degree exhaust of the gas turbines. The project included rebuilding some 30,000 ft of hot-water-delivery piping. During construction, contractors had to plan carefully to ensure that deliveries of systems and equipment did not impact airport operations. Because some of the plant components were too large to be taken under airport road bridges, they were moved by barge to the airport and trucked during off-hours across runways and taxiways to the site.

Finci selected green-tinted window walls for much of the plant to reduce heat gain. The glass walls lean out on a 60 degree angle from bottom to top, increasing the reflectivity of the glass and reducing the structure's visual mass. The piping inside is painted in a coded system of colors: red for fire protection, green for condenser water from the cooling towers, yellow for natural gas, blue for chilled water, and orange for hot water.

A space frame gives scale

At the southern corner of the plant, where two 150-ft-long boilers and their soaring stacks are exposed, the architects gave a sense of scale to the giant machinery by surrounding it with a red space frame. The 5-ft-deep metal frame adds a layer of complexity to the structure and at the same time acknowledges the engineering nature of the cogeneration project itself. And by using off-the-shelf components, the architects kept costs down. ■

Manufacturers' Sources
Space frame: *Starnet International*
Exterior paint: *Sherwin-Williams*
Elastomeric roofing: *Trocal Roofing*
Curtain wall: *Robertson*
Tinted tempered glazing: *Viracon*
Plastic-glazed skylights: *Naturalite*
Exit devices: *Van-Duprin*
Plastic-laminate surfaces: *Formica*

2 West Point Sewage Treatment Plant Seattle, Washington

ANGELA DANADJIEVA HAS TURNED WHAT MIGHT HAVE BEEN AN EYESORE INTO A SHORELINE RETREAT.

by Douglas Gantenbein

Project: *West Point Sewage Treatment Plant Seattle, Washington*
Owner: *King County (formerly Metro)*
Landscape Architect/Mitigation Consultant: *Danadjieva & Koenig Associates—Angela Danadjieva (project designer, principal in charge); Thomas Koenig, AIA (project architect); Tong Cheung, AIA (project director); Roland Aberg (project landscape architect); Robert Harding (landscape architect)*
Prime Engineer: *CH2M Hill*
Associate Architect: *Streeter, Dermanis & Associates*
General Contractor: *M. A. Mortenson*

Project Statistics
Size: *50 acres (total site); 32 acres (treatment plant)*
Plant capacity: *133 million gallons per day*
Cost: *$578 million (total cost); $86.7 million (mitigation)*

The 535 forested acres of Discovery Park, a near wilderness, jut into saltwater Puget Sound just three miles north of downtown Seattle. Although tightly bordered by dense residential development, the park retained this ambience due to decades of ownership by the U.S. military: it was once Fort Lawton. Its separation from the surrounding city also had an unfortunate side effect, however. In 1962 West Point, at the waterside tip of the fort, became the site of a $12.9 million primary sewage treatment plant. Twenty years later, scrambling to meet federal Clean Water Act requirements for secondary sewage treatment (requiring much more elaborate removal of solid material), Metro, the local sewage treatment agency, laid plans for expanding West Point.

By then, Fort Lawton had become Discovery Park, a much-prized city sanctuary. Opposition to Metro's project was fierce, and for a time it appeared the agency would move the plant to another site. But the massive cost of that alternative persuaded Metro to expand operations at West Point in a way that was acceptable to opponents. It promised to spend some 15 percent of the project's $578 million budget on environmental mitigation.

Douglas Gantenbein is the Seattle correspondent for the Economist *magazine and also writes about architecture.*

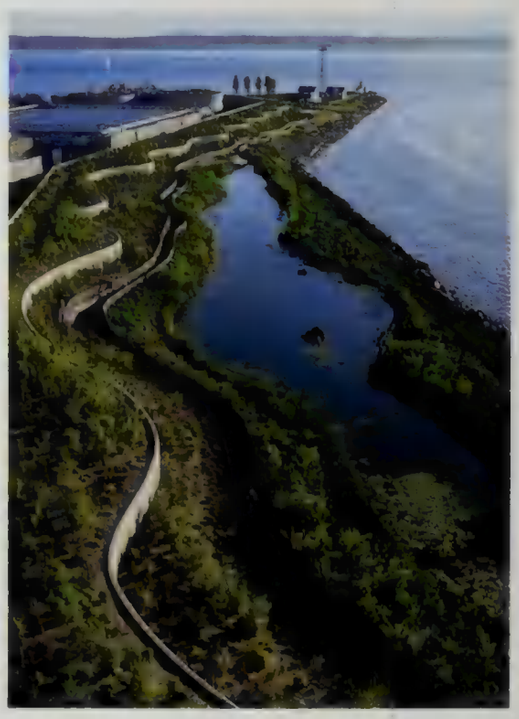
An improbable park

Mitigation, in this context, usually refers to the engineering of disturbed sites to duplicate natural ones. In selecting Danadjieva & Koenig Associates, of Tiburon, Calif., to work with the plant's designers, the Seattle-based engineering firm of CH2M Hill, Metro found a firm that recognizes that re-creating nature may not be enough.

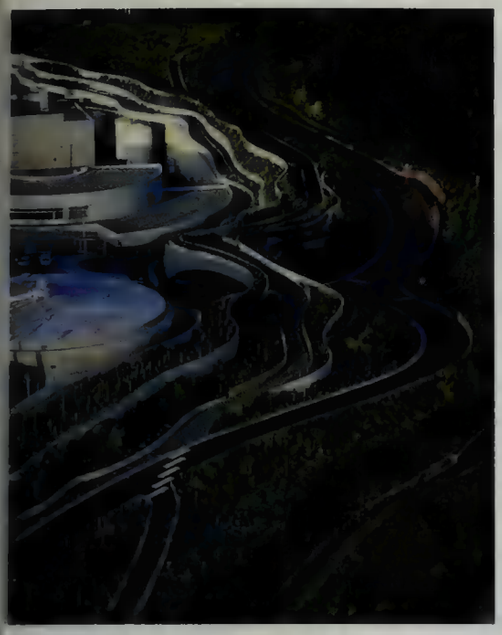
The infrastructure landscape work of Angela Danadjieva, the firm's cofounder, was already known in Seattle. She had worked with Lawrence Halprin on the city's innovative 1976 Freeway Park, and her firm worked on the Washington State Convention and Trade Center—both of which are planted, pedestrianized lids bridging Interstate 5 where it splits the downtown core.

The project required an immense collaborative effort since it had to turn into a benign presence a sprawling processing complex that daily handles more than 130 million gallons of residential sewage.

Installing a planted earthen berm to screen the plant seemed the obvious solution, but it would have been too steep and would

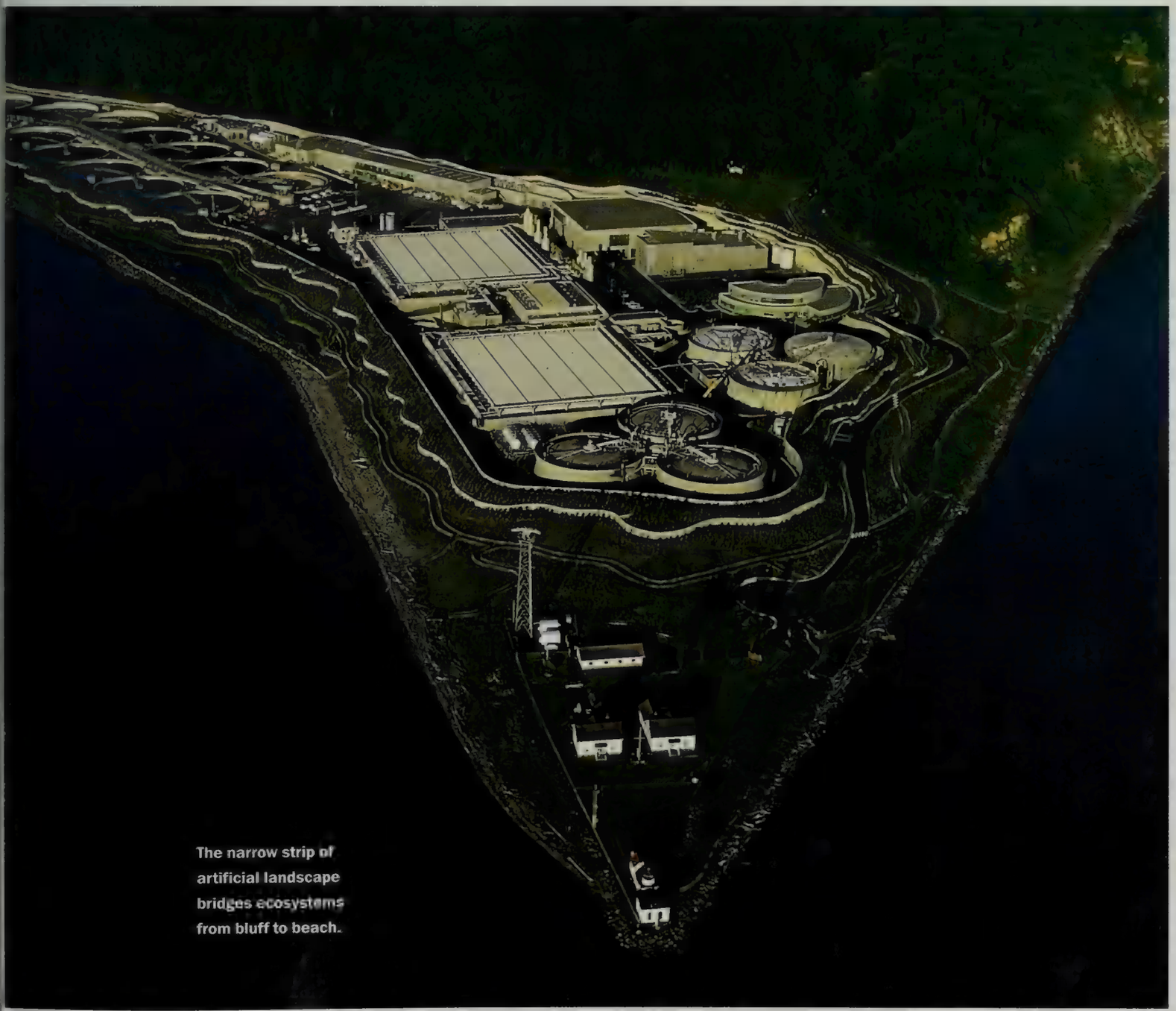


Danadjieva & Koenig constructed a wetland as part of the mitigation of the West Point Sewage Treatment Plant's environmental impact (left). A substantial coterie of waterfowl already have found comfortable nesting spots.

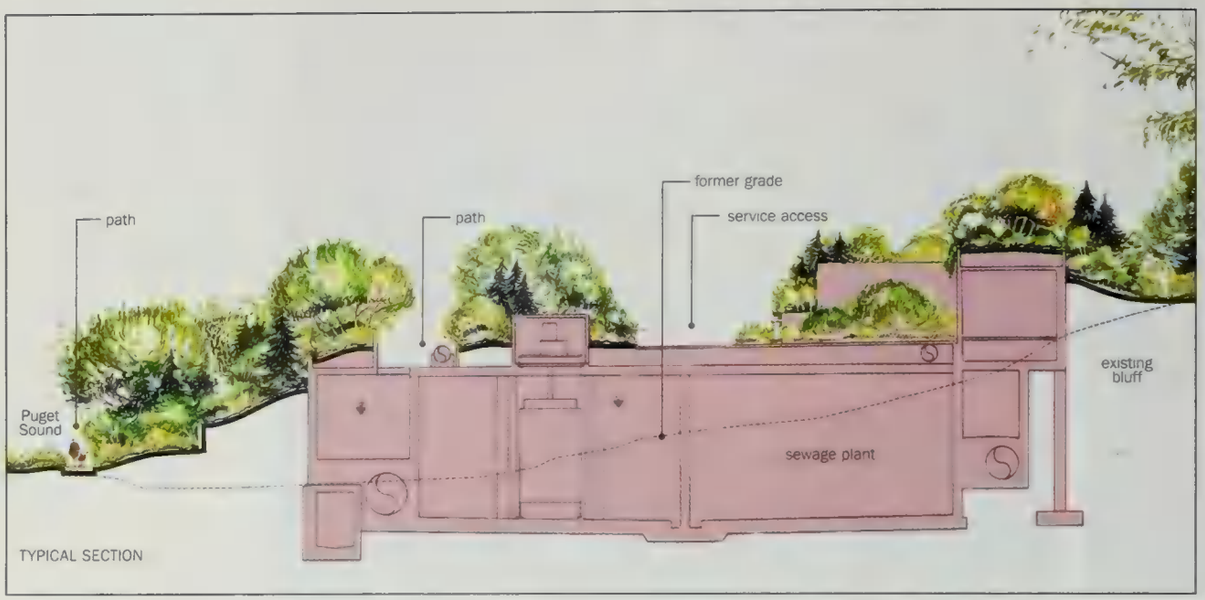




The undulating walls echo bluffs along the north and south sides of Discovery Park that have a naturally scalloped appearance from erosion. The entrance bridge, left, carries a walking path.



The narrow strip of artificial landscape bridges ecosystems from bluff to beach.



have encouraged erosion. Instead, Danadjieva wrapped the treatment plant with a two-mile-long concrete perimeter wall that rises on average 30 ft. Danadjieva's team added a series of sinuous, stepped retaining walls outside the wall, filled in with soil and densely planted. To the east, where the facility hugs a steep bluff, the wall, as high as 60 ft, holds back the unstable slopes. But water drained from behind the wall feeds a new wetland constructed along the project's northern shore (opposite and page 86).

Regard for the human-made

With its waving walls and trails drawn through, the project is much more than mere "mitigation"; it is a 20-acre extension to Discovery Park. At present, the retaining walls are a dominant, visible presence, despite the softening effect of their curves and a concrete-pouring technique that in places leaves exposed gravel to mimic stream-laid sediment. But rapidly filling in the "hardscape" are more than 60,000 trees and shrubs comprising some 80 native species, including Western red cedar, shore pine, big leaf maple, wild rose, red huckleberry, evergreen violet, and cattail. As the plantings mature, they will cascade over the concrete retaining wall, all but hiding Danadjieva's work.



Danadjieva makes no claim to re-creating nature, however. The mitigation scheme acknowledges the fact that the sewage plant—not to mention earlier human interventions—has irrevocably altered the landscape. This tension between the natural and the human-made is most clearly visible in a bridge that spans the access road into the treatment plant and is the most purely "architectural" part of Danadjieva's work (page 87). A pedestrian path that extends along most of the plant's perimeter brings the pedestrian up as if along a soft curve of natural terrain to a small knoll, the bridge's apex. There they are treated not just to eye-popping vistas of Puget Sound, Mount Rainier, and the Olympic Mountains, but to a vista across the huge man-made treatment facility.

Hiding 32 acres of effluent

Making room for this landscape was no mean feat, since a facility that normally would require 80 acres was shoehorned onto 32. New construction was pushed as far west as possible to free up space along the beaches. A pumping station that from an engineering standpoint would have been best sited near the tip of West Point was moved closer to the bluff, where its three-story height is less noticeable. The massive piping and other treatment works are layered three-deep in places to save space. And to reduce odors, the huge clarifying and solids-digester tanks are roofed and fitted with scrubbers. Danadjieva and the Seattle architectural firm of Streeter/Dermanis & Associates worked to ensure that a new, partially visible administration building blended in. (One early plan—to put a lid over much of the plant—had to be scrapped due to its cost.)

Construction posed its own problems due to restrictions on traffic access. A concrete plant was set up on the site to churn out the needed 285,000 cubic yards, and a barge dock, now dismantled, was built to bring in raw materials as well as to haul off construction debris.

To test the success of Danadjieva's work, it's best to simply walk along the shoreline. In places visitors may hear the clank of machinery and get an occasional whiff of the plant's raw material (at the time of writing, sewage authorities and CH2M Hill were still fine-tuning operations). But overall the transformation is startling. From the pedestrian path and beach, the walker may become entirely caught up in the riot of wildflower colors, in the sound of waves lapping against the pebbled beach, and in the sharp tang of salt water and decaying eelgrass. It is even possible to forget what is happening a stone's throw away. ■

Danadjieva used sketches (left) and models to meld landforms and soils with the particularities of the site's climate, wind exposure, and solar orientation.







3 Floating Bridge London, England

QUICK, CHEAP, AND SPARE, THIS PONTOON STRUCTURE IN THE DOCKLANDS BY FUTURE SYSTEMS IS PART OF A BOOM IN LONDON BRIDGE BUILDING.

by David Dillon

Project: *Floating Bridge, West India Quay London, England*
Client: *London Docklands Development Corporation*
Architect: *Future Systems—Jan Kaplicky, Amanda Levete, partners-in-charge; Angus Pond, project architect*
Engineers: *Anthony Hunt Associates (structural); Rendel Palmer & Tritton (mechanical)*
Consultants: *Lighting Design Partnership (lighting); Bucknall Austin (cost estimator)*
Main Contractor: *Littlehampton Welding*

Project Statistics
Length: *280 ft*
Cost: *$3 million*
Structural system: *steel and aluminum on four pairs of polystyrene-filled pontoons*

London's Docklands stretch for miles along the South Thames, encompassing office towers, apartment blocks, and 19th-century warehouses.

In this vast agglomeration, a new footbridge links Canary Wharf, the commercial hub of the Docklands, to the smaller 19th-century West India Quay. Designed by Jan Kaplicky of Future Systems, the bridge is a slender 280-ft arc of painted steel and extruded aluminum resting on four pairs of pontoons filled with polystyrene. The pontoons respond to the movement of the water, giving the bridge a pleasant springiness and the appearance of a graceful water spider. The center section can be raised hydraulically to allow barges and restaurant boats to pass through, though water traffic here is not heavy.

The bridge provides access to shops, restaurants, and gardens, while reinforcing the impression of the Docklands as a waterfront development instead of a landlocked office park. At night, the bridge's legs, deck, and handrails are illuminated by colored lights so it becomes a piercing lime-green line set against the bulky verticality of the surrounding office towers.

[author block illegible], a contributing editor of [illegible] the architecture critic of the [illegible] Morning News.

Old idea, new constraints

A pontoon bridge, a piece of military technology that goes back at least to the Romans, offered an ingenious solution to a set of unusual problems. Since the quays at either end are nonstructural, the bridge had to be more or less self-supporting. And since the lawyers and stockbrokers in the Canary Wharf towers didn't want a work barge parked outside their windows for months, it also had to be erected quickly. Kaplicky designed his floating bridge to be fabricated in two sections at a nearby boatyard and then towed into place. Construction took 10 days, at a total cost of approximately $3 million.

"It was a bit risky," Kaplicky recalled. "The client [London Docklands Development Corp.] had never seen a pontoon bridge before and thought it might be too crude. But they loved the simplicity of it, the way it shows how it is made."

The floating bridge is one of half a dozen new footbridges in the Docklands, part of a citywide boom that includes proposals for rail bridges, automobile bridges, habitable bridges, and a narrow, laserlike footbridge connecting St. Paul's Cathedral to the new Tate Gallery of Modern Art designed by Norman Foster. After decades of sprawl and fragmentation, London is suddenly pulling itself together.

Kaplicky attributes the renaissance to an exhibition several years ago of the work of Santiago Calatrava, which changed the public's perception of what a bridge could be. "He raised the standard for everyone," says Kaplicky. In addition, London itself has changed. The real estate bust of the late 1980s, coupled with the demise of Postmodernism and the retreat of the hectoring Prince Charles, has refocused attention on making the city work. Infrastructure has become the hot design category, and bridges its most conspicuous component. (Ironically, none of the bridge commissions has gone to Calatrava.)

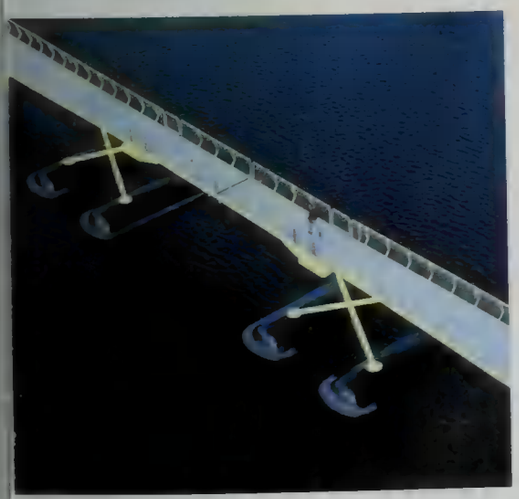
Testing new ideas

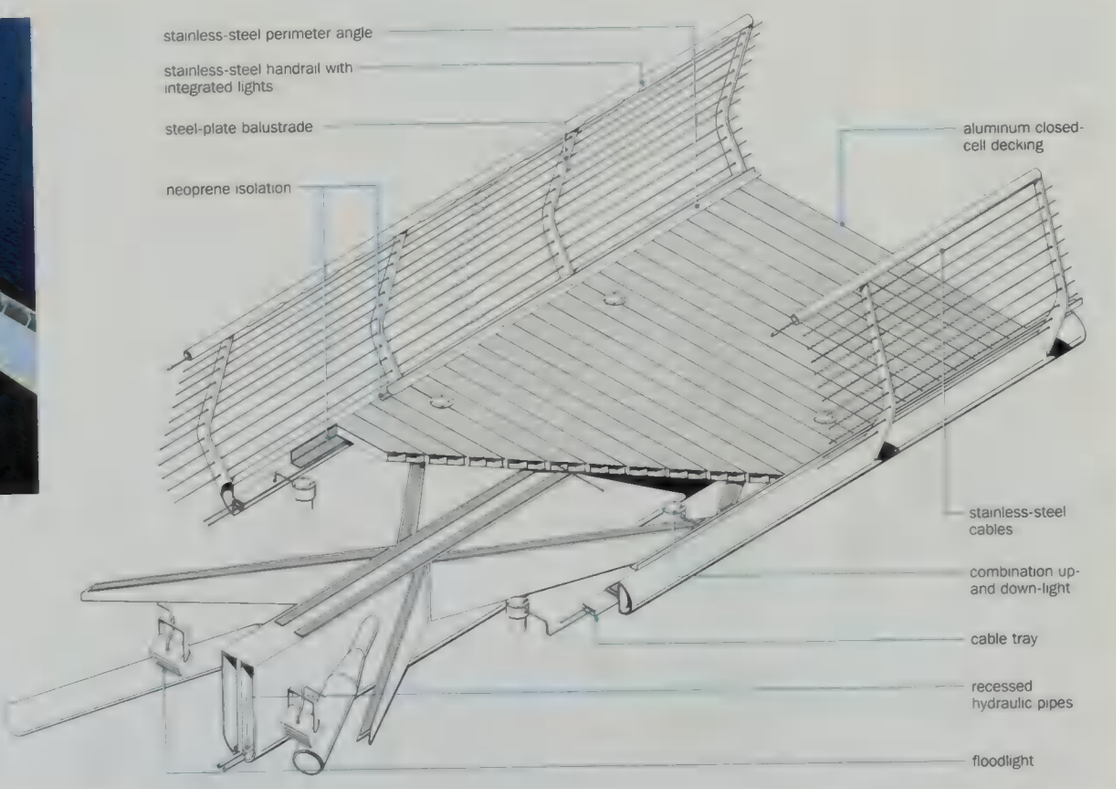
For architects, designing even a footbridge can be a chance to experiment. Thus, Kaplicky is having his steel press box for Lords Cricket Grounds fabricated at a Thames shipyard and transported to the site. just as he did with the Canary Wharf–West India Quay bridge. In a city nearly smothered by two decades of revivalist appliqué, bridges have become a vehicle for reasserting the value of construction and craft.

"In London, you can no longer go to an engineer and say, 'Build me a bridge,'" says Kaplicky. "The role of architecture in an engineering project has been recognized. It is not just a decorative element." ■



Fluorescent lighting in the stainless-steel handrails illuminates the bridge at night (left). To heighten the sense of lightness, the bridge gets narrower at its center (bottom left). This central section can be raised for water traffic (drawing below).





4 Transportation Center Charlotte, North Carolina

AN AIRY, VAULTED SHED PACKED WITH SERVICES SOLVES PROBLEMS TYPICAL OF SPRAWLING ALL-BUS TRANSIT SYSTEMS.

by Kenneth Friedlein

Project: *Charlotte Transportation Center*
Charlotte, North Carolina
Owner: *The City of Charlotte/ NationsBank, a joint venture*
Architect: *Gantt Huberman Architects—Harvey B. Gantt, FAIA, partner-in-charge; Larry Walters, AIA, project architect*
Engineers: *King/Guinn Associates (structural); McCracken & Lopez (plumbing, fire protection, mechanical, electrical)*
Consultants: *Gantt Huberman (interiors); Land Design, Inc. (landscape); Parsons Brinckerhoff Quade & Douglas (traffic and civil engineering); James Brawley (ADA/sound systems); Jones Worley Design (graphics)*

Project Statistics
Construction cost: *$9.3 million*
Size: *95,000 sq ft*
Passengers: *4.5 million in the first year*
Construction: *Fast-tracked: a 9-in. concrete slab was poured on a 15-ft grid of pilings because of uncertainties about soil conditions. Construction took 12 months; the center opened December 1995.*

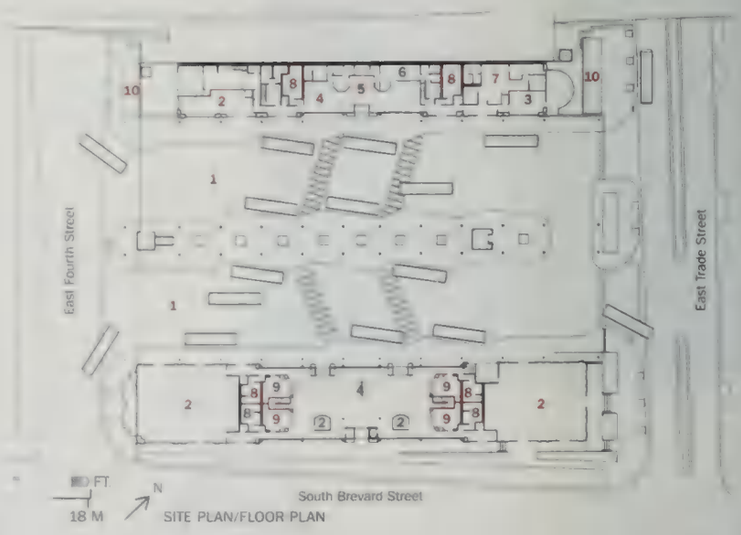
While urban rail stations were often grand and airport terminals can be elegant, bus stations have rarely been accorded the architectural treatment these ubiquitous facilities deserve. Charlotte, North Carolina, has attempted to rectify this situation by erecting an airy, barrel-vaulted pavilion that already serves as a terminus and transfer point for more than 4.5 million annual transit passengers.

It was not clear initially what a bus station in a city of 580,000 ought to be. Several planning studies since the late 1960s had anticipated Charlotte's need for a central facility to consolidate transfers. In the 1980s the city opted for a different model, remaking the downtown's main north-south avenue with wide walks lined with lamps and trees and punctuated with bus shelters that would disperse riders along a 10-block, people-oriented transit mall.

Unfortunately, because the hub-and-spoke bus system relies so extensively on transfers, waiting riders didn't spread out along the streets. Instead, up to 10,000 daily passengers packed the sidewalks around The Square, downtown's crossroads, because it was the point at which most routes met. However, The Square is also the showpiece center of the city's rising banking district, and, aside from a few inadequate shelters, there were no facilities for riders. Voices in the corporate community expressed concern about a perception that the white-collar office district was being overrun by the blue-collar and service workers that make up the bulk of bus ridership.

The bank makes an offer

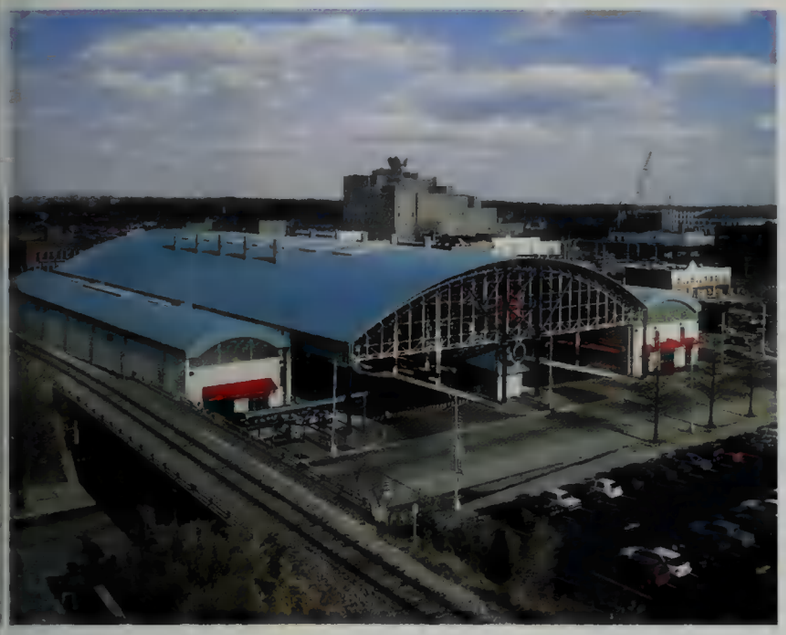
NationsBank, a key local player, has a history of initiating and investing in inner-city developments in Charlotte. Indeed, its Corporate Center, the 60-story tower and performing arts complex designed by Cesar Pelli, faces The Square. Chairman Hugh McColl brought together city and transit officials and Harvey Gantt, FAIA, a former mayor and U.S. senate candidate and partner at Gantt Huberman Architects. McColl made an offer: if the city would provide the land, the bank would finance a central bus facility. Gantt was sensitive to the impression that would be created by merely relocating bus riders to a less visible location. On the other hand, moving the people and the buses to a close-in site could relieve congestion and realize a



SITE PLAN/FLOOR PLAN

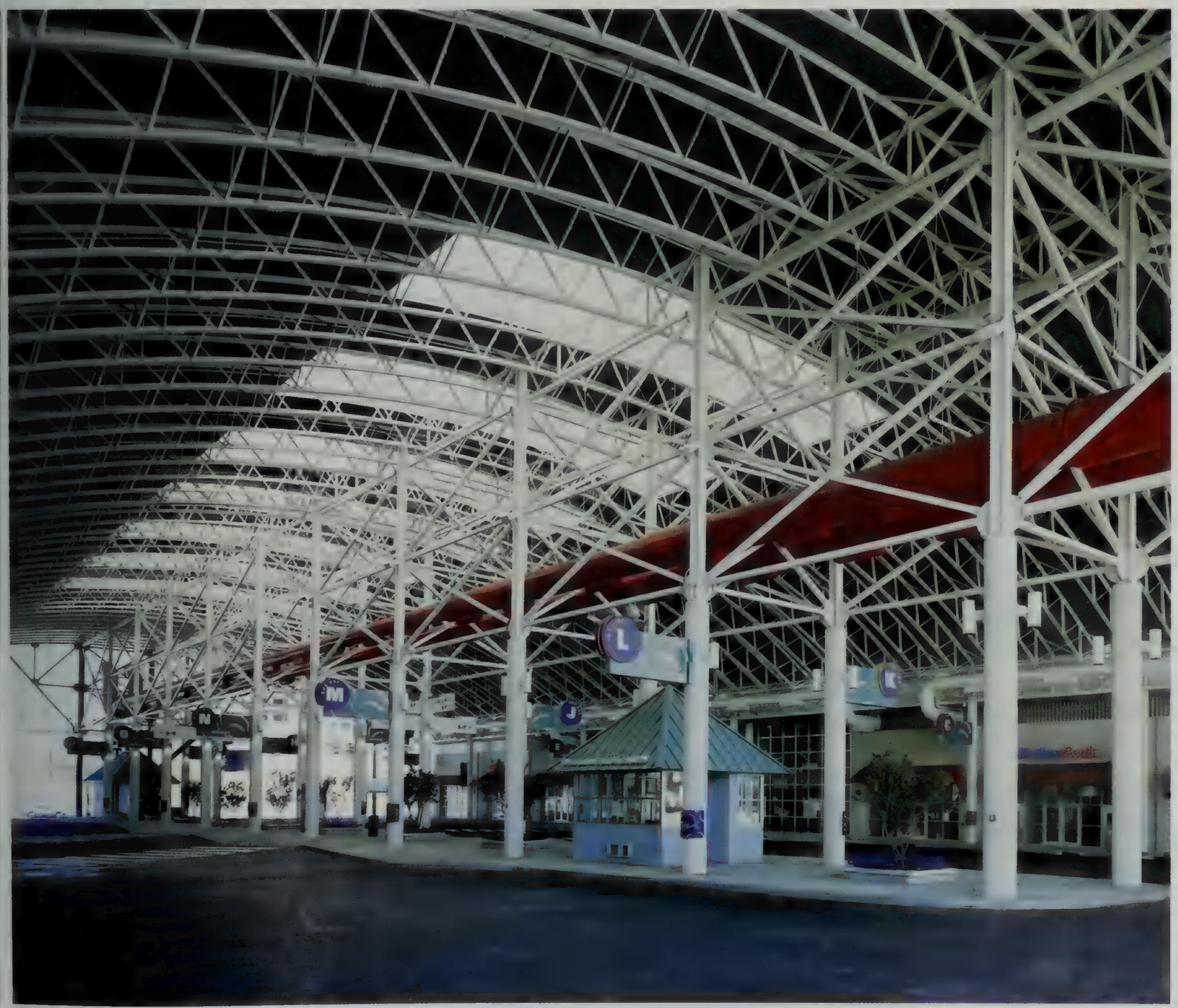
1. *Bus loading shed*
2. *Retail*
3. *Utility-bill paying*
4. *Lobby*
5. *Transit information*
6. *Police*
7. *Branch bank*
8. *Toilet*
9. *Food vendor*
10. *Bus shelter*

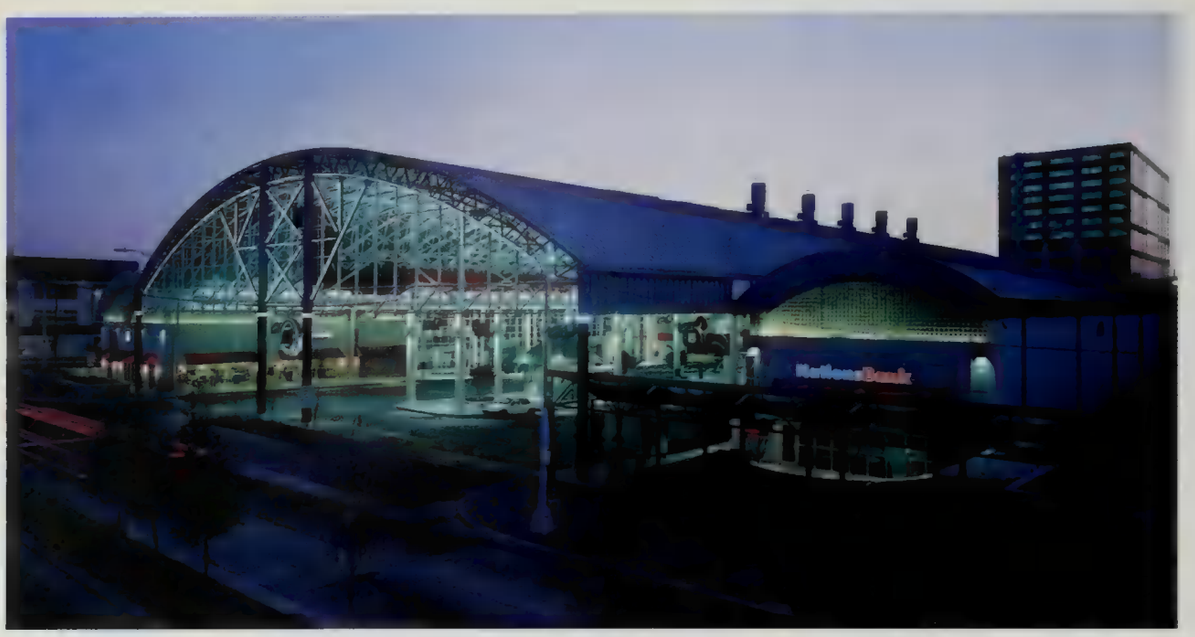
Kenneth Friedlein, a longtime journalist, is an architectural intern at Wilson Weinstein Architects in Chapel Hill, N.C.



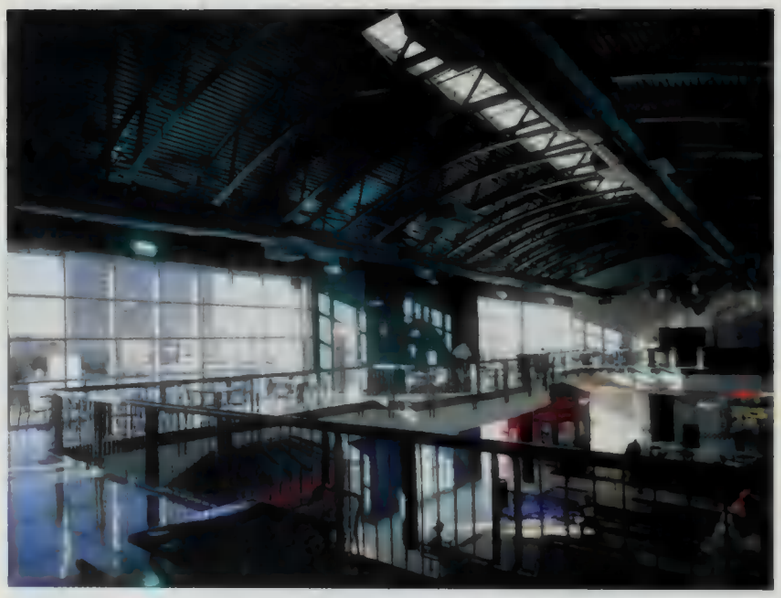


DOWNTOWN CHARLOTTE





The bus facility's shed is welcoming even at night. Food vendors, a clinic, and other services were designed into the center (below left), catering to a ridership limited in both time and means.



long-term planning goal for street-focused development that bridges the gap between Charlotte's skyscraper business district and the complex of lowrise city and county offices that sprawl over several blocks to the south (map, page 93). Gantt remembers that the bank's initial inclination—to array bus shelters on the city's 2.6-acre site—seemed too modest. He [illegible] that the intersection of [illegible] and key [illegible] provided opportunity.

"[illegible] the business of building [illegible] that [illegible] contribute to the life of the city." As the firm looked into the problem, he realized "there weren't a lot of examples. Face it—buses aren't the pizzazzy form of mass transit."

A big pavilion

Initially he gave the sketch problem to the entire office, he explains. "What came back were a lot of big spaces. It was obvious we had an opportunity to do a grand space, a terminal like the train stations in Rome and Florence, like Victoria Station in London. . . . We wanted [illegible] movement, a different form [from other downtown buildings]."

[illegible] Gantt ultimately presented about $10 million and [illegible] a landmark structure and [illegible] mix of uses that would cater to waiting bus passengers and to visitors who might be enticed from nearby offices.

As developed by project architect Larry Walters, AIA, the project covers most of a former city parking lot with a 200-ft, truss-supported curved roof spanning the 20-bay bus transfer pavilion. Two smaller-span vaults flank the main shed, enclosing climate-controlled retail and service spaces.

Gantt Huberman made the most of the exposed steel-angle trusses by filtering daylight from skylights through them, uplighting them at night, and adding touches of neon. The architect hung banners to add color and a rider-oriented scale within the big space and used backlit glass block in the side pavilions to enliven the exterior. "We knew this could really spur development on this side of town," Walters says. "We tried to make it as exciting as possible."

Walters credits Charlotte Transit System officials with keeping his firm focused on the needs of bus riders, and the center features transit information in forms accessible to riders who are either vision or hearing impaired. Riders with a variety of disabilities are also served by a staffed transit information and ticket center. The recent addition of a walk-in, preventive-care clinic run by the city's major medical center rounds out ancillary operations in the now fully leased facility. To help riders feel secure, benches have short arms that define seats and thwart sleeping. Many walls are fully glazed to ease surveillance.

Gantt says he measures the transportation center's success by the satisfaction expressed by clients, both the bank and the bus riders. By making an opportunity out of what was perceived as a problem, "all those issues about moving people off The Square are largely forgotten." The Federal Transit Administration called the facility a model for all-bus systems.

"It helps to have clients like Hugh McColl who have got real feelings and concern for this downtown area," Gantt observes. It also helps to know what's going on. "We have a storefront office here—people walk in off the street. And we have an ethic that says people get involved in the community. What ought to make a better designer is understanding the socioeconomic and political factors that shape what a city becomes." ■

Manufacturers' Sources

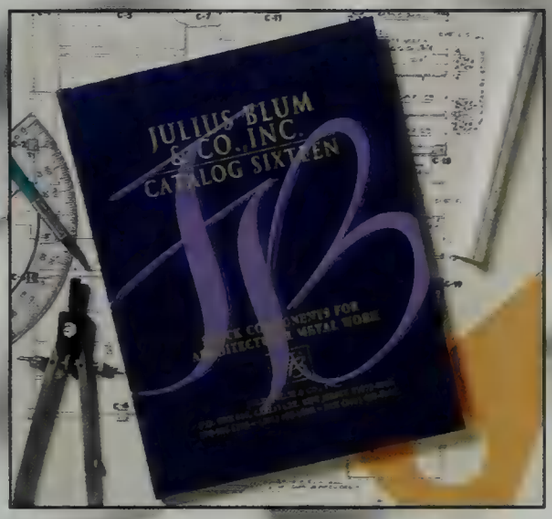
Storefront system: *Kawneer*
EPDM roofing: *Johns-Manville*
Metal doors and frames: *Ceco*
Acrylic CMU coating: *Sto Decocoat X*
Toilet partitions: *Metpar Corp.*
Glass block: *Pittsburgh Corning*
Tile: *Granitifiandre, Florida Tile, Dal-Tile*

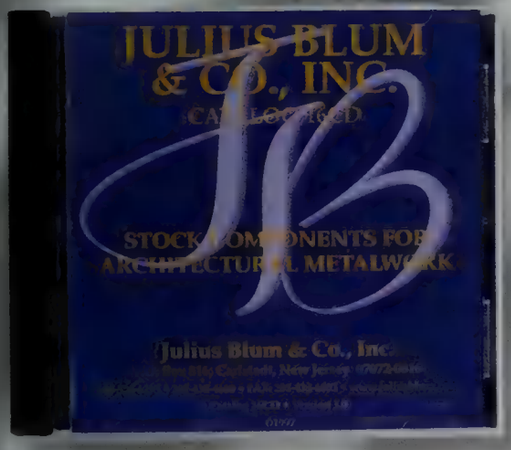
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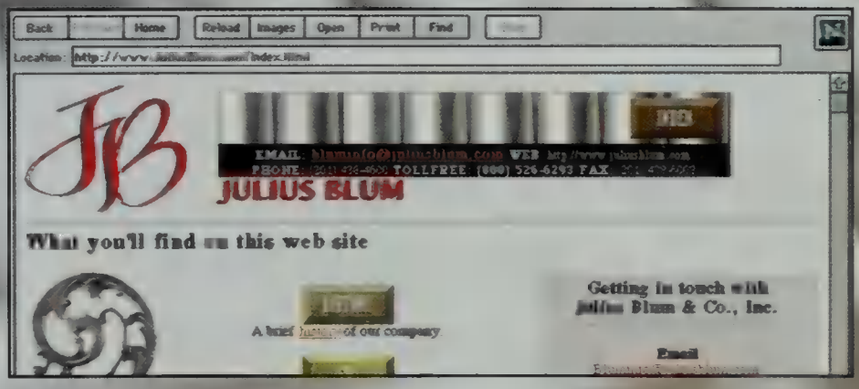


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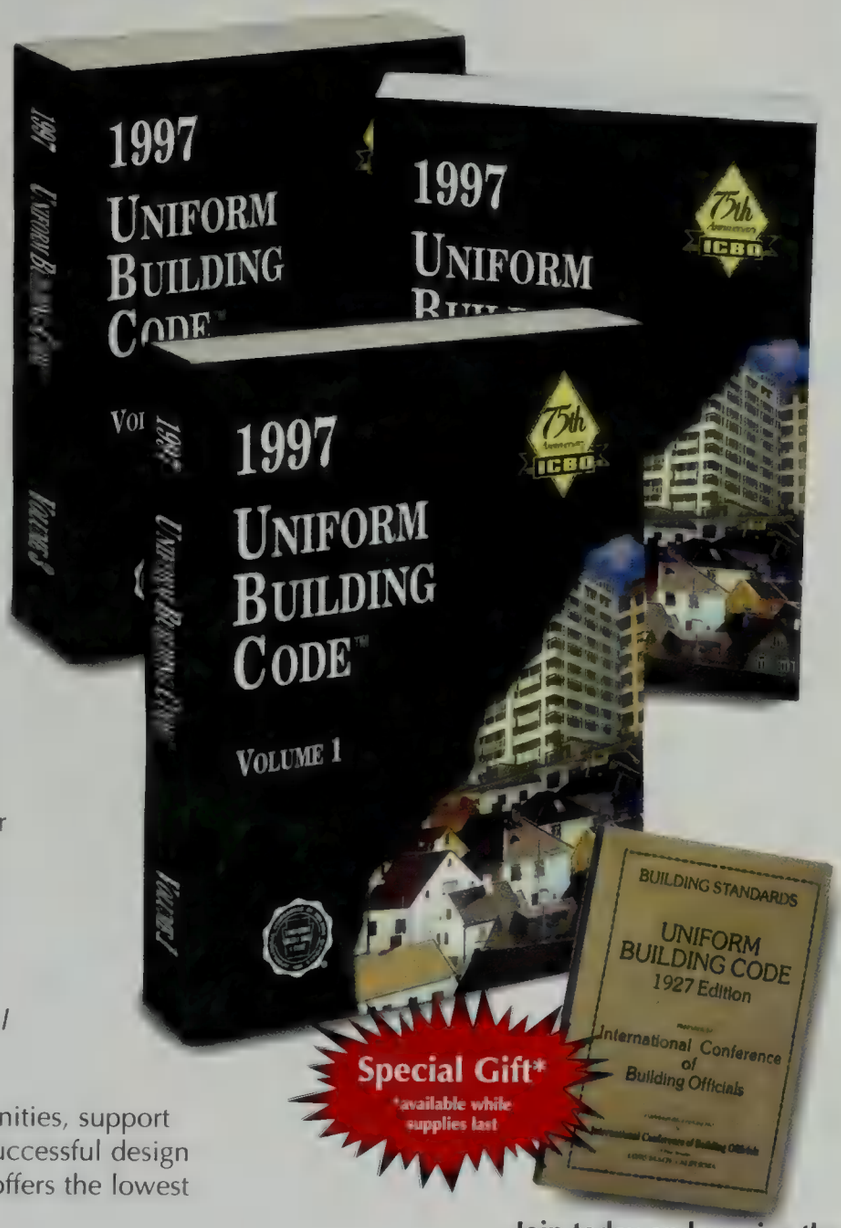
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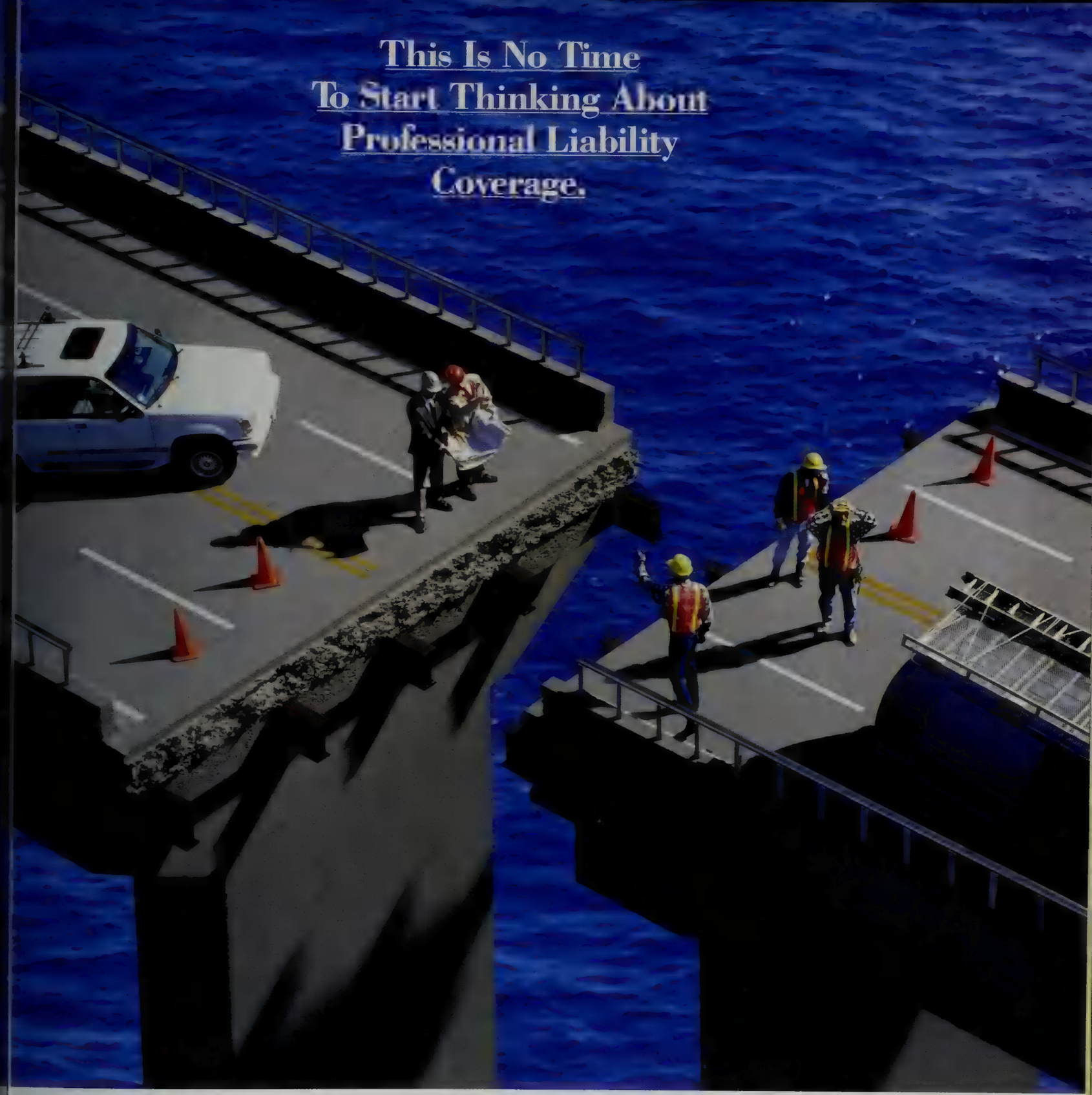


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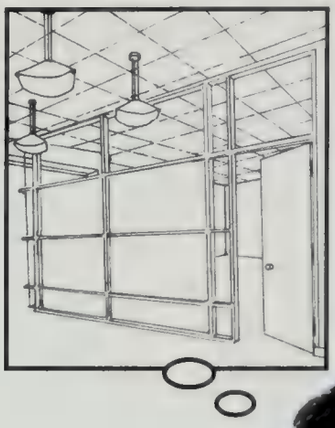
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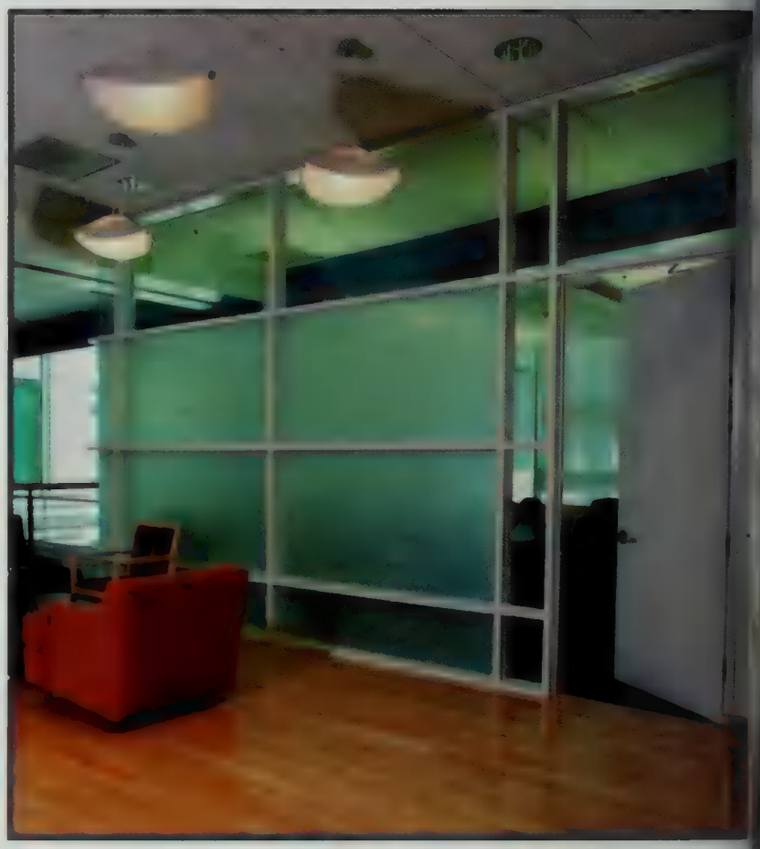
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CIRCLE 36 ON INQUIRY CARD

LIGHTING...



1909–1997

ABE FEDER

whose accomplishments in architectural and theatrical lighting spanned over sixty years, passed away at the age of 87 on April 24. I remember the first time I ever spoke to him—it was about 10 years ago, and I was the editor of a fledgling lighting magazine. One afternoon he called me out of the blue and grilled me about the magazine and what I knew about lighting. Not very much, I had to admit. Had I ever heard of him? No. Over the next 30 minutes he rattled off a list of accomplishments so amazing I thought he had to be making them up: technical director for the Federal Theater Project, including Orson Welles's famed production of Dr. Faustus, *the lighting designer for the original productions of* My Fair Lady, Camelot, *and* On a Clear Day You Can See Forever. *Later I learned he had designed some 300 other Broadway shows.*

At the end of World War II his theater work was suddenly supplemented by dozens of architectural lighting jobs every year, as the value of adding a lighting designer to the design team was suddenly realized by architects. Even though relatively few buildings were built during the Depression and the war, advances were still made in lighting. Now there were fluorescent lamps, PAR and reflector lamps, recessed downlights, and other innovations that demanded the skills of an expert. During the four and a half decades he did architectural lighting, his client list read like a who's who of architects. Edward Durell Stone, Harrison and Abramowitz, and Eero Saarinen, to name just a few, all consulted with Abe.

One of his best-known projects was the lighting of the RCA Building (right, now known as the GE Building) in 1986. He also lit the Prometheus Fountain at its base, the sculpture of Atlas nearby, and murals inside. The lighting of the GE Building is even—defining the setback planes sharply—and bold, just as Wallace Harrison's architectural forms are. Today, I work across the street from the GE Building, and in the winter, when darkness comes before I go home, I never fail to look the place over, and think of the wonderful things Abe Feder brought to life through illumination. His work, like that of other lighting design pioneers, changed the face of architecture forever. I will miss him.—Charles Linn, AIA

105 Lighting Observations

111 Innovative Architecture for Image, Efficiency, and Users' Comfort
Busby and Associates

114 A Procession of Museum Spaces Inspired by the Light of a Dutch Painter
Hollands Licht

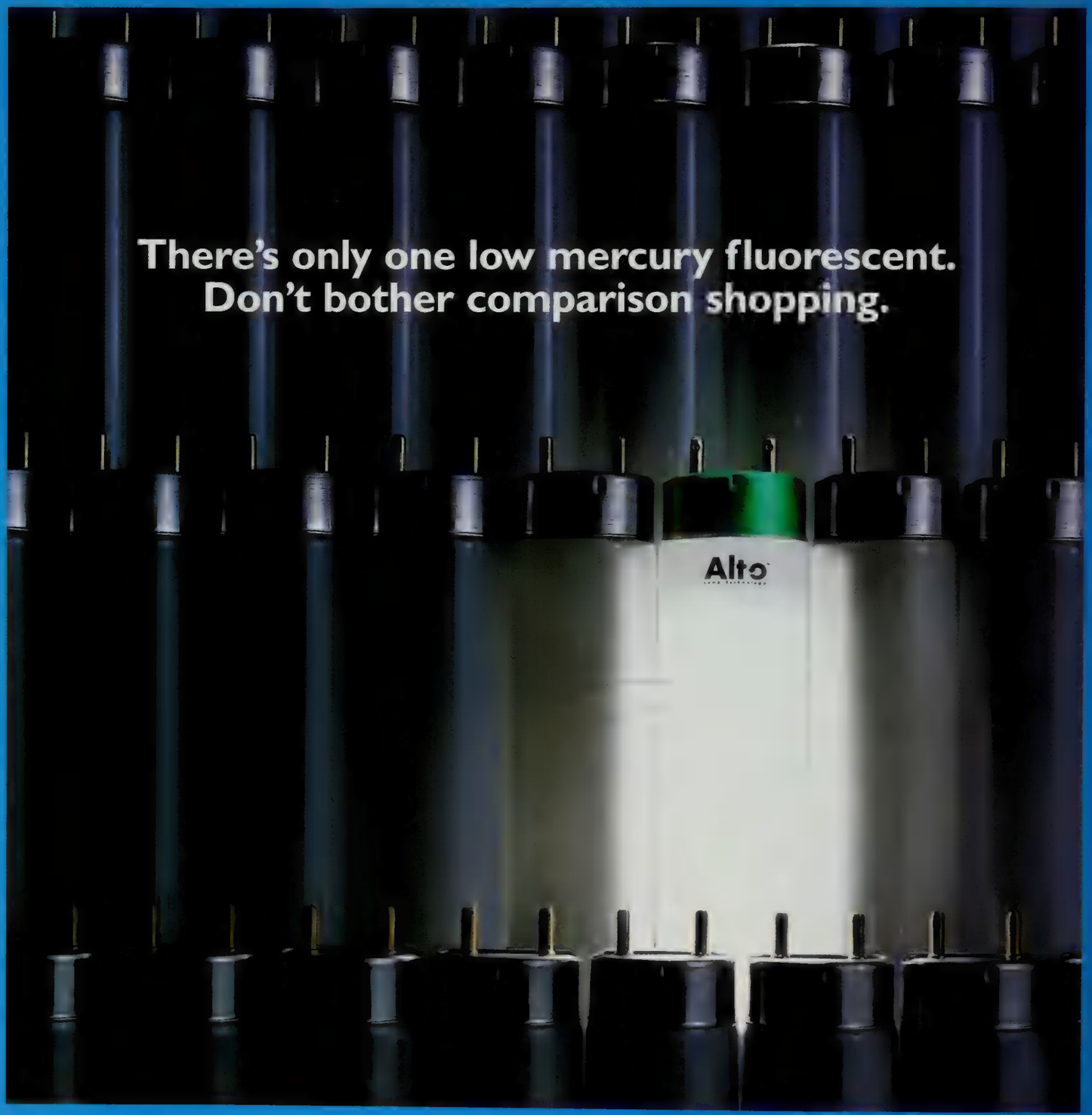
117 The Ohio Statehouse Experiences an Enlightened Revival
Schooley Caldwell Associates
Gary Steffy Lighting Design

123 Case Study: SONY CD Factory Presents a High-Tech Lighting Challenge

131 Residential Lighting Control Strategies for Every Budget

132 Lighting Resources





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CIRCLE 5 ON INQUIRY CARD

CREATIVE USES

LIGHTING A COSMETICS SHOP AS IF IT WERE A JOURNEY OF SELF-DISCOVERY

The Trucco Atelier in Glendale, Calif., is a cosmetics workshop. It is an interactive, "touch-feel-know," 1990s kind of store, where cosmetics are within reach and the purchase of makeup is treated as a journey of self-discovery. The first in a series to be opened by the California-based company Sebastian International, the Trucco Atelier was designed by the Woodland Hills–based architectural firm of Artecnica, headed by Enrico Bressan and his wife, artist Tamineh Javanbakht.

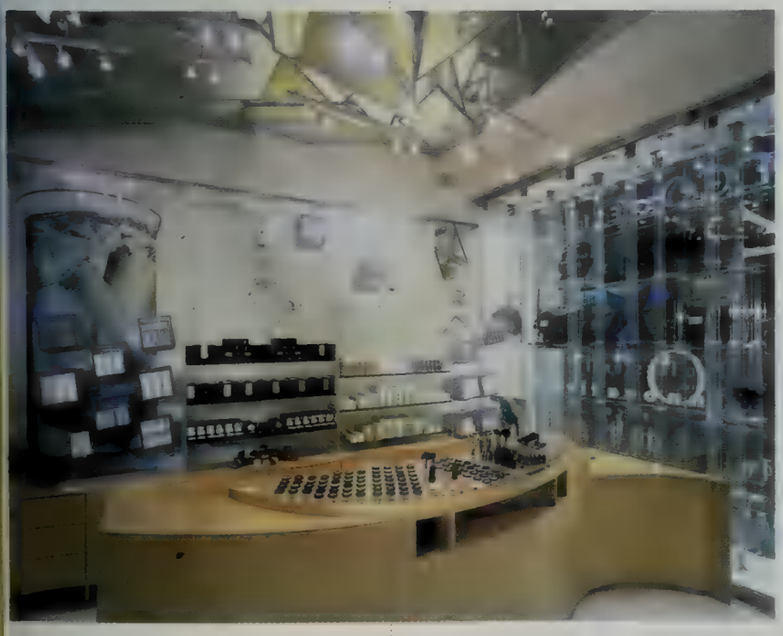
The 550-sq-ft store is designed with plexiglass, glass, resin, and fiberglass in shades of blue and aquamarine, accented by natural birch display units.

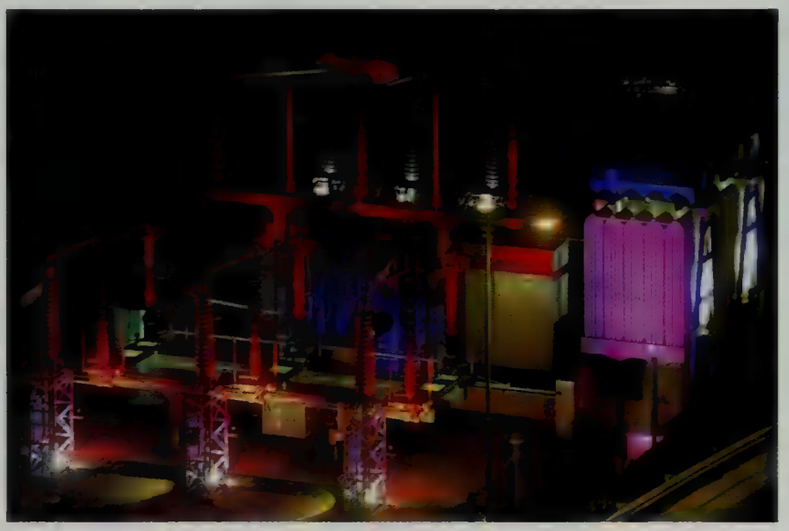
The storefront is made up of three layers of parallel vertical glass panes set just inches away from each other. This creates the illusion of depth and adds a three-dimensional quality to the displayed products. In the storefront window, cable-mounted V-shaped light fixtures with MR16 lamps are mounted between the layers of glass to spot displays.

The window, coupled with an epoxy-plastic-covered floor and 11-ft-high glass-paneled walls, creates a high-gloss glass box. Suspended fiberglass panels float along the ceiling, adding dimension and translucency to the space. Four rows of track lighting with MR16-lamped pendants attached are concealed in the fiberglass ceiling panels. These pendants have been supplemented by a 100W quartz flood aimed at the ceiling. In the display areas, MR16 halogens mounted from 16-in. stems allow the flexibility necessary for changing displays.

"The store is like a chameleon," says Javanbakht. "It has to be able to change its skin to fit the different moods of the display." The brief for the lighting was that it had to be adjustable, but also had to be warm and bright enough from all angles to facilitate the application of cosmetics.

"It was like creating a stage set where the customers are the actors," adds Lili Merck, of Artecnica, who also designed the lighting for the project.



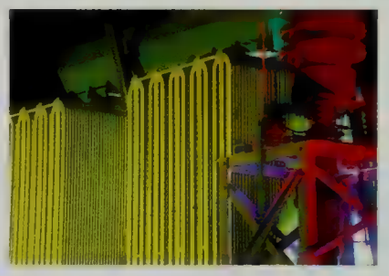


HIGH-VOLTAGE HUES GIVE POWER STATION GLOW OF RESPECTABILITY

Dewar Place, a power systems substation of ScottishPower, has played a key role in the city of Edinburgh for more than a hundred years. A major energy source for the city, the station supplies power to 33,000 customers. A recent redevelopment of the area around the old railway station, replacing the station and its sidings with some of Edinburgh's finest modern buildings, had made Dewar Place something of an eyesore in contrast with the now vital Exchange Plaza.

The substation could not be moved or changed, but a community-led initiative to enhance its appearance determined that lighting could be used to transform the space. For the Edinburgh-based lighting design firm Jonathan Speirs and Associates, the challenge was to create a sculpture out of the functional forms of the power plant. The resulting lighting plan has transformed a visual embarrassment into a vital, dynamic structure, which has become a city landmark.

Five Irideon AR500 luminaires fitted with dichroic filters drench the unusual forms in red, blue, green, and yellow, creating a color composition that uses the corporate colors of ScottishPower. Metal-halide fixtures within the components of some of the machines—such as cooling fins and porcelain insulators—emphasize the three-dimensional quality of the space. Fluorescent batons around the exterior edges of the site define the border of the structure. Speirs and Associates have deliberately limited the types of lamps and luminaires in order to allow easy maintenance.



Creating a light sculpture in the heart of the city brings its own set of requirements. While the structure had to be lit so that it could be viewed from every angle, up close and at a distance, luminaires have also been carefully aimed and shielded to avoid spilling light onto the surrounding buildings, and to avoid creating glare on the four-lane highway nearby.

The lighting scheme, part of ScottishPower's £400,000 investment in technical and visual enhancement, has, according to the lighting designer, pleased the local government, community groups, and neighbors alike, and has led the way for more community-based solutions.



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CIRC[illegible] INQUIRY CARD

LIGHTED LOBBY-LANTERNS GREET LOWELL TOWERS OFFICEGOERS



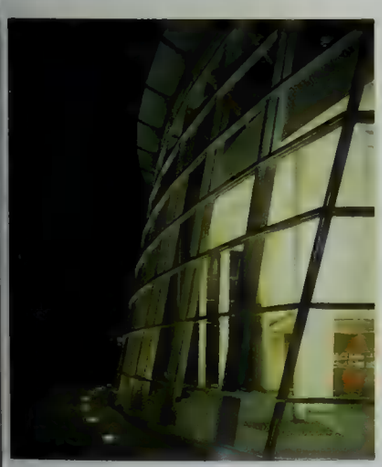
ADD Inc., of Cambridge, Mass., was commissioned to transform Lowell Towers, a rather uninviting, single-tenant property consisting of three square, brown office buildings in Lowell, Mass., into a user-friendly multitenant office environment. As redesigned, a pair of complex, curved-glass curtain wall entrance lobbies is connected by a bright, broad gallery whose edges are enlivened by retail shops and tenant amenities.

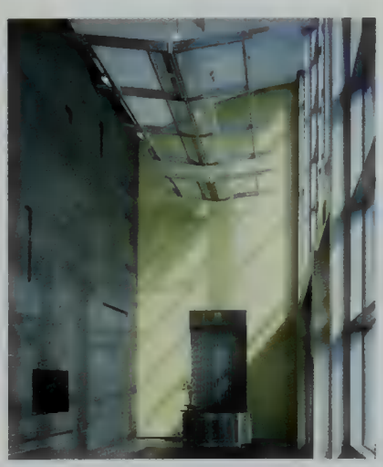
The lobbies—light-filled spaces anchoring both ends of the new corridor—were created by replacing the opaque building exterior with glass curtain walls. The 30-ft-high glass structures now give scale and a dynamic street presence to the 1 million-sq-ft office complex.

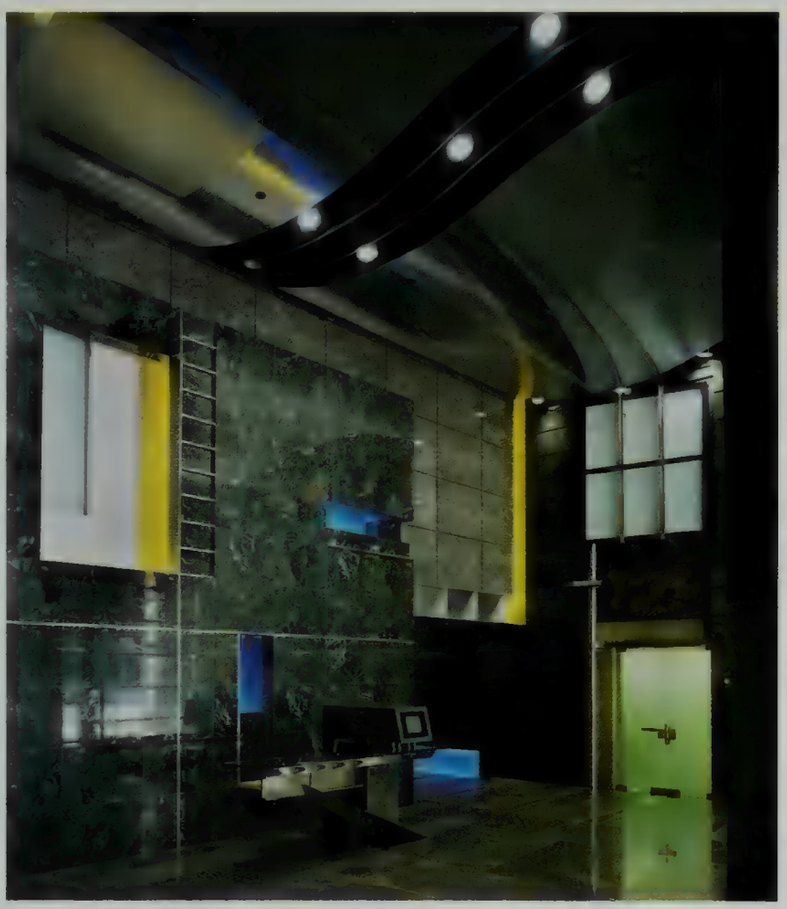
Curved in plan as well in elevation, and punctuated by a series of geometric forms, the main glass entry structure is lit primarily from within, so it glows like a lantern. "It has a very high visibility at night, and has become something of a landmark," says project executive Wayne Koch, a partner at ADD Inc.

"We created a simple lighting plan, designed primarily to animate the building as an object," says D. Schweppe, of D. Schweppe Lighting Design. 250W, 3000K metal-halide fixtures on a ceiling-mounted metal armature work as wall washers. Also mounted in the 30-ft-high ceiling are 250W metal-halide downlights and 15-mm 3000k neon, recessed into a slot where the curtain wall meets the interior existing stone wall. This light grazes the wall, throwing it into relief and adding drama to the space. Throughout the low-height spaces, energy-saving compact-fluorescent downlights provide ambient lighting and allow the building complex's management to take advantage of rebates from local utility companies.

The interior lighting spills out through the glass panes onto the plaza surrounding the buildings. Although this creates a pleasant effect and a sense of security, such a large amount of light might be seen as wasteful. In order to compensate, the interior spaces have been sparsely lit at night. Outside, bollards with 250W metal-halide lamps delineate the path from the entrance of the plaza to the lobby. The glass curtain wall is capped by a row of fins that act as sunshades during the day. Recessed metal-halide uplights are aimed at each mullion to emphasize the exterior wall's curved planes.







LAYERED LIGHT IN LOBBY RENOVATION HINTS AT HIGH-TECH SYSTEMS BEYOND

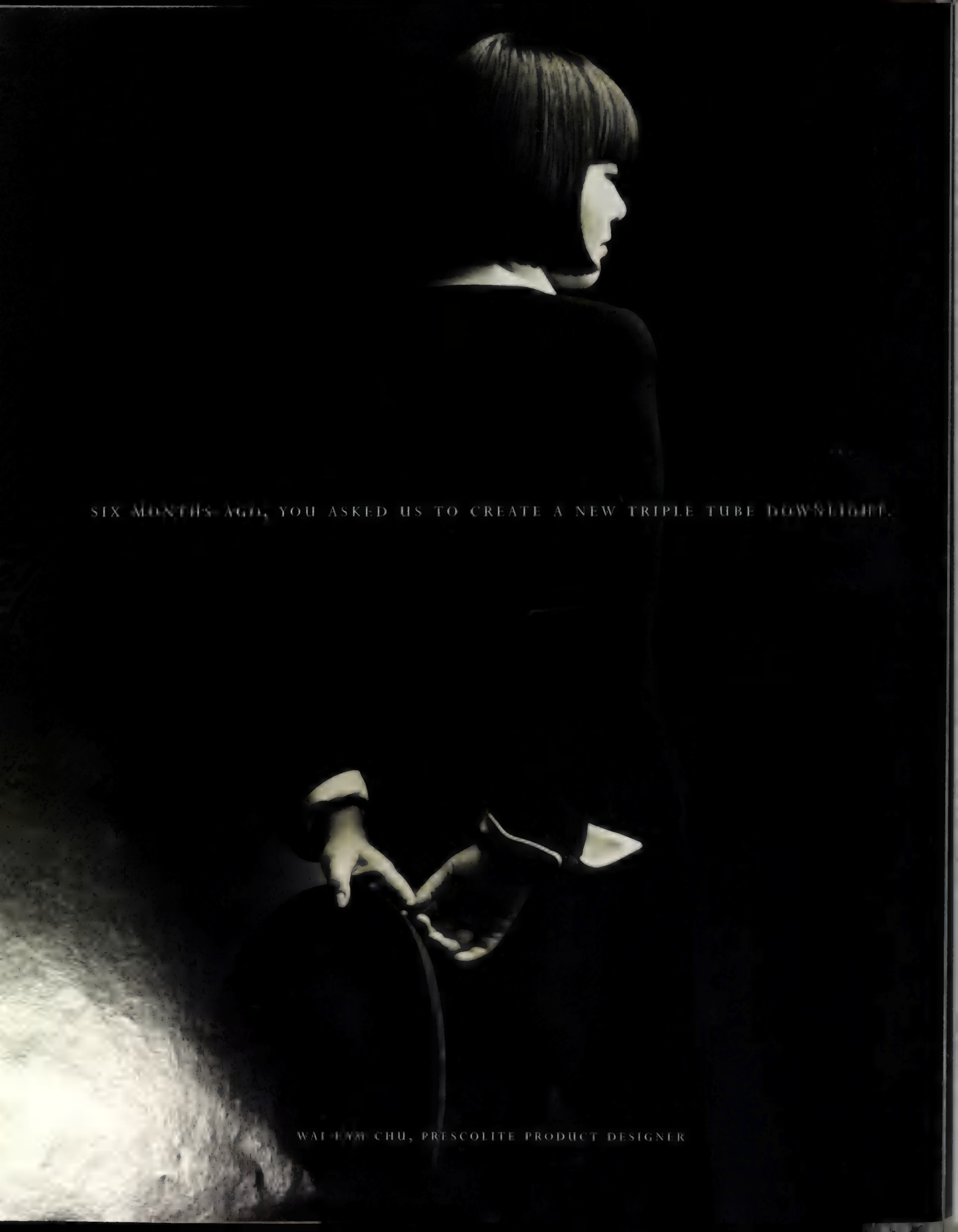
88 and 100 University Avenue in Toronto appear to be one building but are actually a pair. Both have had their own lobbies and elevator banks since they were constructed in 1956. Located downtown at the junction of the financial and theater districts, the landmark buildings were two of the first curtain wall structures in the city.

As the result of a limited competition, the Toronto-based Webb Zerafa Menkes Houdsen Partnership was awarded the commission to create a new image for the building. They combined the two lobbies into one grand, double-height space using glossy surfaces such as granite, glass, and metal, supplemented with cold light—fluorescent, cold-cathode and metal-halide—to create a dramatic entry designed to provide a foretaste of the new state-of-the-art systems within the buildings.

A cantilevered entrance canopy defines the main entrance and introduces a geometry that is reflected in the lobby floor pattern and the positioning of the lighting. The lobby, according to project manager and lighting designer Voytec Gorzinsky, has been conceived as an extension of the exterior. On the exterior, aluminum "stitches" hold together different layers of granite. In the interior lobby, layers of sheet rock and metal are superimposed with layers of lights of different intensities and color rendition.

In the main lobby, custom, adjustable pendant-mounted fixtures with 50W metal-halide lamps are located in a light trough in the aluminum ceiling, while the elevator banks are highlighted by fluorescent strips with 32W 3500k T8 lamps mounted above a sandblasted glass ceiling. Cold-cathode fixtures—1-in. in diameter—in blue, gold, and coral highlight open corner niches.

—Nayana Currimbhoy


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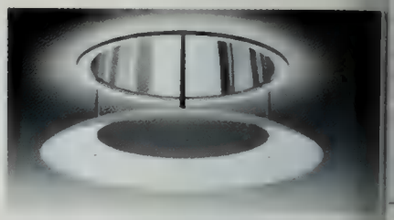
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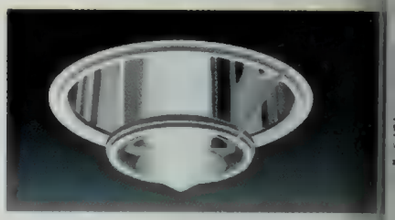
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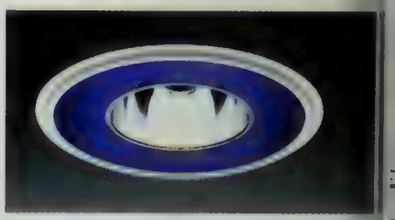
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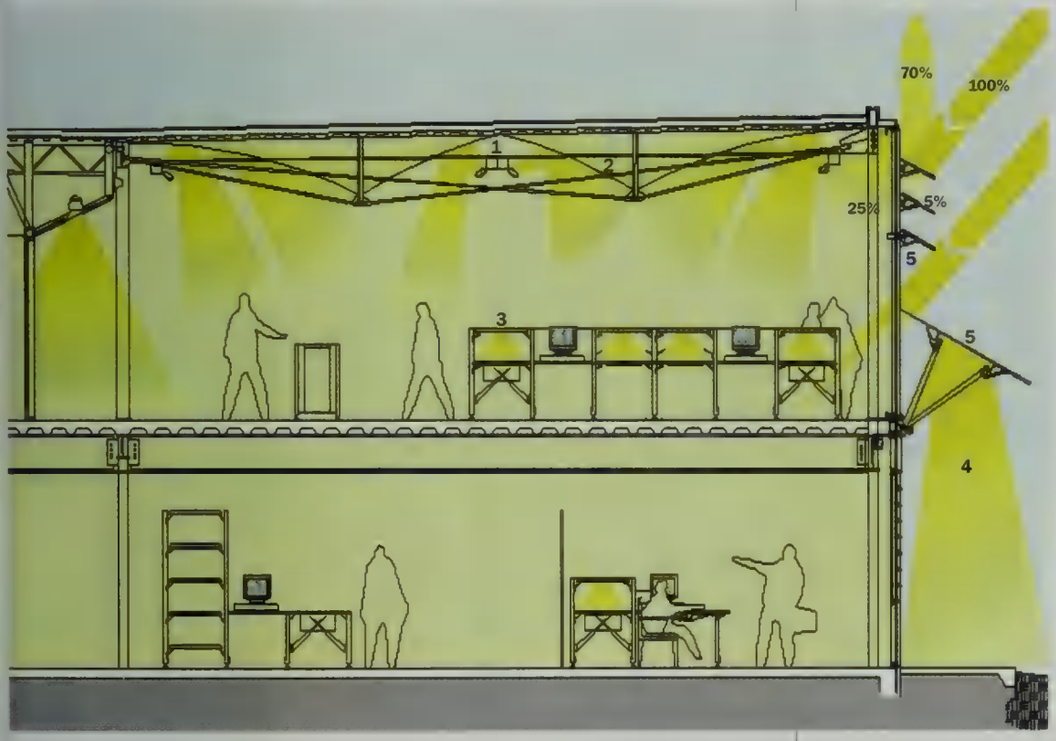
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CIRCLE 40 ON INQUIRY CARD

Innovative Architecture for Image, Efficiency, and Users' Comfort

by Charles Linn, AIA





1. *Indirect lighting*
2. *Semitranslucent/ reflective-fabric sails*
3. *Task light at desks*
4. *Indirect walkway lighting*
5. *Fritted-glass sunshade*

Architecture has always played a role in defining the aspirations and politics of organizations. And now that some of them want to be seen as earth-friendly, the result can be architecture that uses energy wisely and considers life-cycle issues and a building's use of natural resources. Perhaps the best results are achieved when "green" architecture also attempts to consider the needs of those who work in these buildings.

The Association of Professional Engineers and Geoscientists of British Columbia (APEGBC) wanted a new headquarters building that would show off its commitment to principles of sound energy management, display advanced engineering through its architecture, and provide a comfortable work environment for its employees.

Busby and Associates Architects (formerly known as Busby Bridger and Associates) responded to these needs with a building that is high-tech in appearance but also uses daylighting, an indirect lighting system, and a number of other progressive energy-saving components—such as heat pumps and a ground-source heat sink—to demonstrate APEGBC's commitment to energy conservation. The building's energy consumption is less than 90 percent of that allowed by ASHRAE's Standard 90.1.

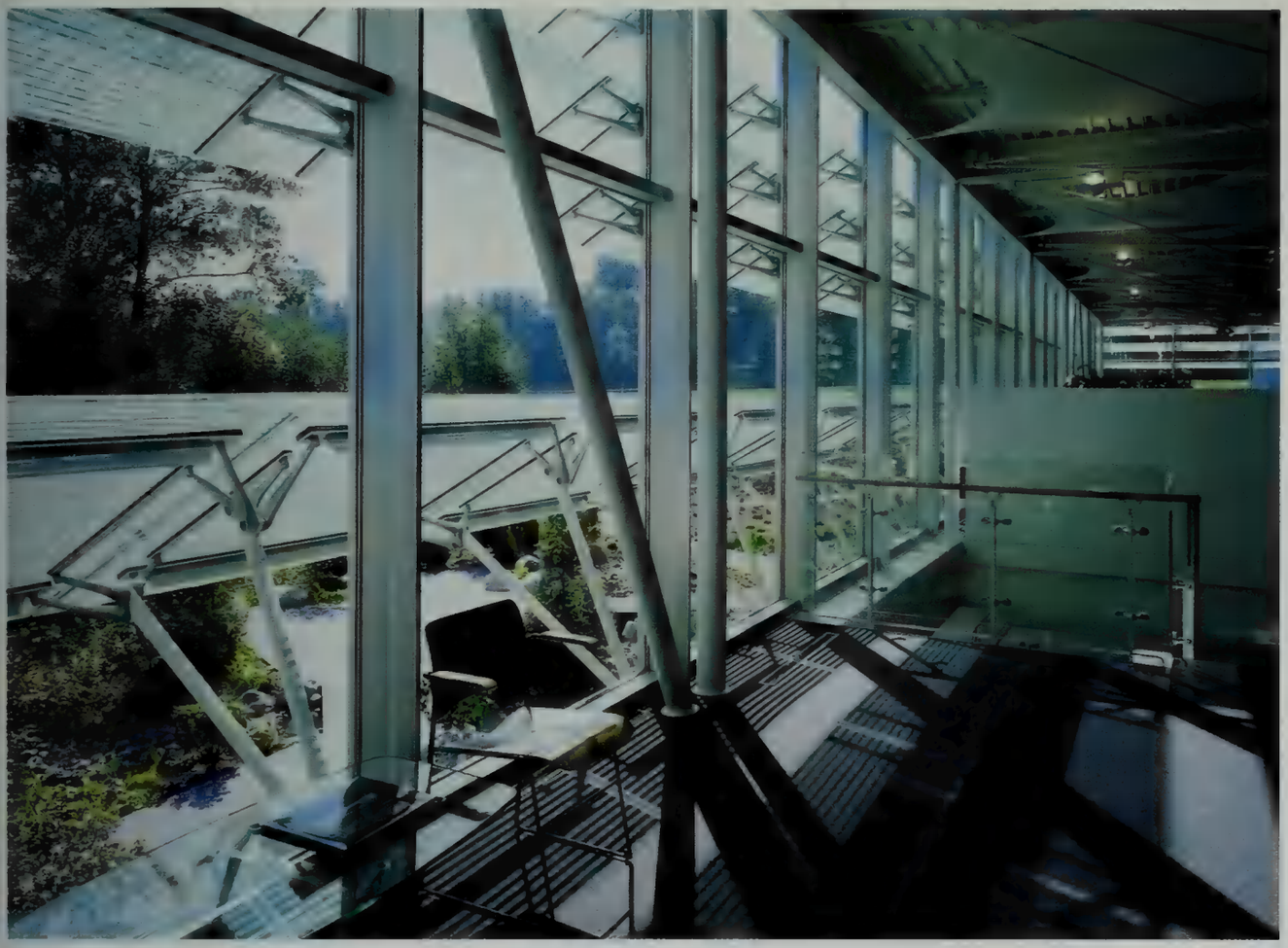
The building's form, orientation, and fenestration were computer-modeled to predict energy efficiency and to optimize the building's envelope design. The building's long axis is on a north-south orientation, to give the building a highly visible position on a nearby highway and to create a view corridor to the mountains for building users. This footprint has left a good deal of the site available for landscaping. The north, east, and south elevations are glazed with low-emissivity glass, and the east and south elevations have fritted-glass sunshades fastened to them. The west elevation is solid masonry, to block summer sun and views of a neighboring building. The building's enclosed offices, mechanical equipment, and other services are located on this side of the building, leaving the view accessible to the open-office area, where most of the association's employees work.

At the second story of the two-story structure, where APEGBC's offices are located, the upper sunshades work like light shelves. They are installed at an angle that allows most of the direct-sun component to be reflected away from the building by the fritting during the hottest months of the year, when the sun is highest above the horizon. Approximately 70 percent of the light is reflected upward, 5 percent is reflected by the low-emissivity glazing, and the remaining 25 percent is admitted into the building for indirect

Project: *Association of Professional Engineers and Geoscientists of British Columbia Headquarters Burnaby, British Columbia*
Architect: *Busby and Associates Architects—J. Breshears, P. Bridger, Peter Busby, M. McColl, D. Thiruchittampalam, A. M. Tam, A. Vaughan; Designlines—S. Schou, G. Tovel*
Lighting Designer and Electrical Engineer: *Reid Crowther and Partners—Robert Marcuzzi, lighting designer*
Consultants: *Read Jones Christofferson (structural); Keen Engineering (mechanical); Reeve MacDugall (landscape); Protection Engineering (life-safety codes)*
Contractor: *Degelder Construction Company*



The fabric lighting system is integrated with the building's suspended roof assembly.

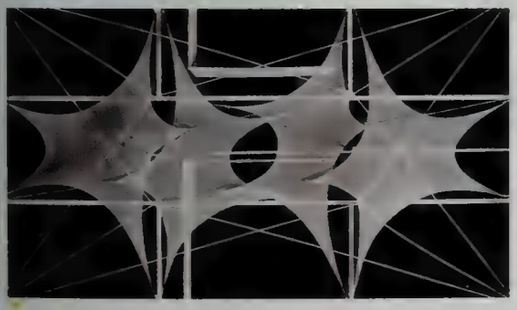


In the summer, the sunshades, made of fritted glass (a glass that has patterns of ceramic fused to its surface), reflect much of the direct-sun component away from the interior of the building. In the winter, when the sun is closer to the horizon, more light is admitted.

lighting. A larger sunshade, which protects the first-floor leased space, also doubles as a reflector for 70W metal-halide fixtures. These are aimed upward to the underside of the sunshade to provide indirect walkway lighting at night.

The lighting in the offices is provided by 70W metal-halide tracklights, in addition to the daylight that is bounced off the light shelves. The light reflects off a shallow, fabric tensile structure that is fastened to a suspended roof assembly—which itself eliminated the need for a conventional bar joist structural system. A combination of spot and flood fixtures was used, depending on how far away from the fabric the fixtures were located. The fabric is translucent, so that some of the light bounces directly off it, while some of the light penetrates the fabric to the ceiling, where it can bounce downward again. The resulting light is soft, avoiding the computer-screen reflections that are a source of discomfort for users. Workstations have also been oriented away from direct light that comes through the curtain wall to keep daylight from reflecting in the computer screens. The unique castings and extrusions used for the fabric structures, sunshades, and roof suspension system were designed and manufactured by Designlines, Busby and Associates' product design division.

Other portions of the APEGBC building are also lighted with energy-efficient fixtures. Corridors are illuminated with 18W compact-fluorescent downlights, and enclosed offices are lighted by two 32W T8 lamps in 2-by-4-ft ceiling troffers with 2-in.-deep louvers. Busby and Associates also designed the interiors and provided task lighting for workstations where needed. ■



The shape of the fabric reflector/shade was fine-tuned using a model (left). A detail of the finished shade (right) shows the soft, indirect light produced by the system.



Manufacturers' Sources

Exterior metal-halide indirect fixtures: *Infranor*

Metal-halide track: *Lightolier*

Fluorescent downlights and troffers: *Thomas Industries*

A Procession of Museum Spaces Inspired by the Light of a Dutch Painter

by Charles Linn, AIA



Rogier van der Heide, an Amsterdam-based lighting designer, has something in common with many American lighting designers: he learned his craft in the theater. He studied lighting design, photography, and directing at the Institut Supérior des Beaux-[illegible] Theatre School in Amsterdam. Van der Heide lit [illegible] throughout Europe before establishing his [illegible] in early 1995. The firm concentrates mostly on [illegible] although it has also lit some theatrical pro-[illegible]. "My design philosophy uses the emo-[illegible] architecture live. I learned to [illegible]

[illegible] approach produces fine moments in [illegible] "The Pride of Haarlem," at the Frans Hals [illegible] in the city of Haarlem, the Netherlands. The museum is the home of the world's largest collection of paintings by Hals, one of the Dutch Old Masters (it has been said that Hals was to Haarlem what Rembrandt was to Amsterdam). The museum is located in a 17th-century building formerly used as a convalescent hospital known as the Old Men's Home.

The lighting worked out by Van der Heide for the exhibition is undeniably influenced by Hals's own re-creation of the gentle, ethereal quality of daylight in his paintings. But rather than applying oil to canvas, Van der Heide has used light itself and gauzy, translucent fabric as his mediums. Information is transmitted onto the fabric in the forms of shadow, color, and text. The fabric's translucency both illuminates and obscures what lies ahead for the viewer, creating sequences of mystery followed by revelation.

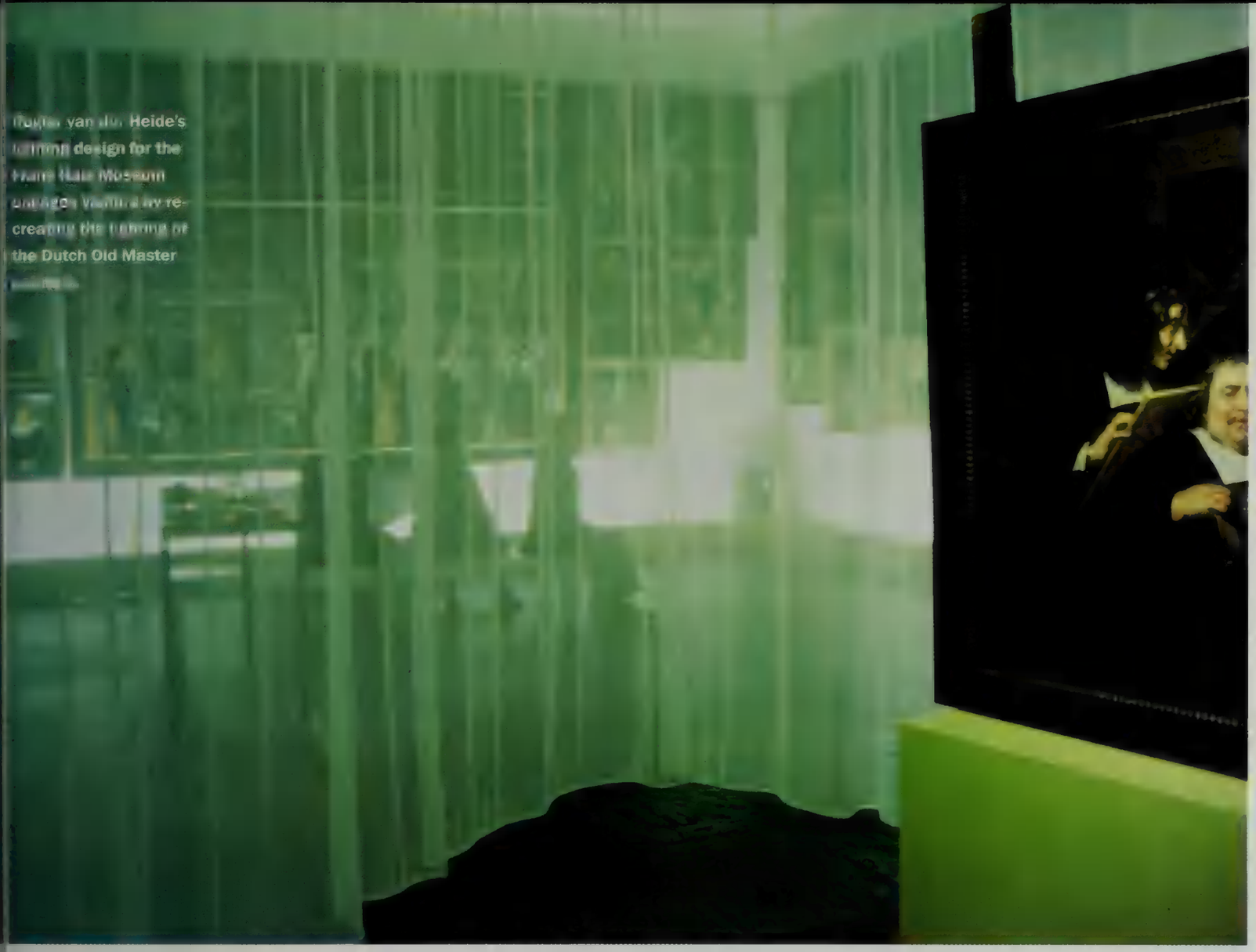
The entrance to the exhibition (opposite middle left) is marked by the words "Des trots" ("the pride"), which epitomize the 750-year history of Haarlem celebrated by the exhibition. The phrase is painted in red on a blue wall, and veiled behind a curved curtain. The curtain is itself grazed by white light, and forms a semicircular room that presents Jacob van Ruisdael's 1670 painting *View from the Dunes with Haarlem in the Distance.* A bright wash of light reflecting from an adjacent gallery signals that a transition is due. To keep one white-painted gallery after another from becoming monotonous, and to establish a sense of mystery and sequence between the spaces, Van der Heide has dressed walls and draperies in some rooms entirely in blue- or red-colored light (left and opposite lower left), alternating these with galleries that are lit entirely by white light.

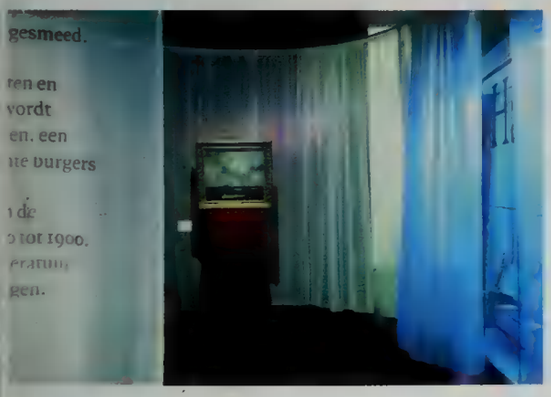
Throughout the exhibition, a floor cove fixture developed by Hollands Licht is used to project uplight on the walls and paintings. The effect is not unlike footlights once used in the theater. A row of track fixtures with silver-bowl lamps built inside a trough is aimed toward an adjustable mirror—the light simply bounces from the mirror onto the paintings and wall surfaces. Even in this gallery with many paintings, Van der Heide has avoided the conventional use of accent lighting and lit all of the paintings evenly. Wherever possible, lighting is integrated with the exhibition design to create interesting and mysterious textures. For example, a front-lit antique chandelier casts a shadow at a sharp angle on a piece of folded drapery hung behind it (opposite bottom right). ■

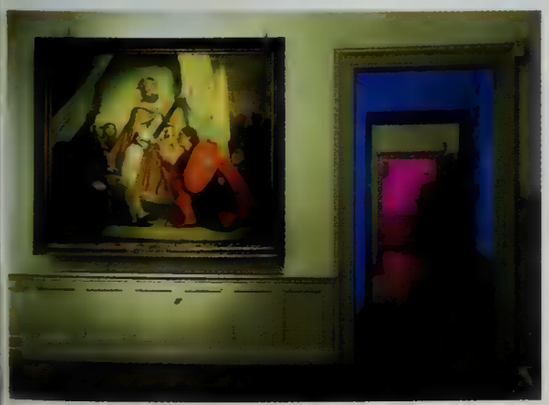
Project: *Frans Hals Museum Haarlem, the Netherlands*
Architect: *Gebr de Jong*
Lighting Designer: *Hollands Licht—Rogier Van der Heide, principal; Henk van der Geest*
Electrical Engineer: *Hollands Licht*

Manufacturers' Sources
Halogen track: *Erco*
Ellipsoidal track: *Microspot*
Dichroic filters: *Erco*
Floor cove fixture: *designed by Hollands Licht*
Floor cove track: *Erco*

Hunter van der Heide's lighting design for the Frans Hals Museum enhances Vanitas by re-creating the lighting of the Dutch Old Master







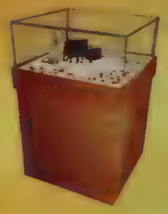




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CIRCLE 41 ON INQUIRY CARD

The Ohio Statehouse Experiences an Enlightened Revival

by Charles Linn, AIA



An aerial view shows where skylights have been reopened at the Ohio Statehouse. A lightwell that was once open to the exterior (below) has a new skylight, and an elevator for vertical access.

The Ohio Statehouse is one of the nation's finest examples of Greek Revival architecture. It was built over a period of 22 years and completed before the Civil War. In 1988, when Schooley Caldwell Associates began studying how the building might be restored, time, neglect, and insensitive remodeling had taken their toll. When it was completed, the capitol building had 53 rooms. In the 135 years or so following its completion, generous rooms were divided and subdivided again until a total of 317 cubicles occupied the same space.

Summarizing one major problem brought on by these haphazard additions, project engineer Terry Sullivan, AIA, says, "When this building was built, daylighting wasn't just something that you did. If you didn't do it, you were in the dark. Every one of the 53 original rooms had access to daylight, so on a decent day, you didn't really need much light. But in the process of adding floors and walls to the building, skylights and windows were blocked and covered over, and original electrified gaslight fixtures were dismantled and lost. The lighting was destroyed along with the fabric of the building."

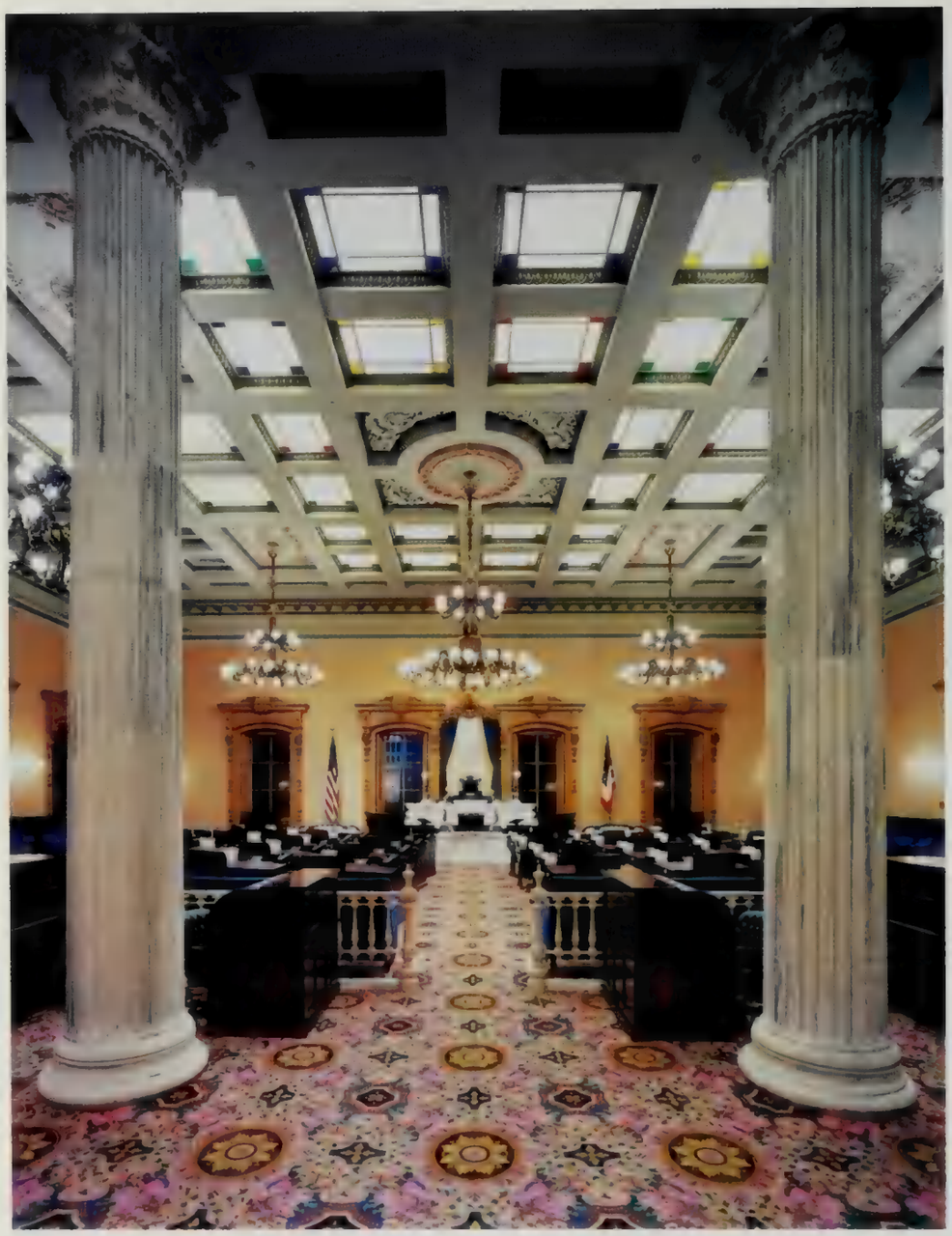
Principal-in-charge Robert Loversidge, AIA, reflecting on the results the new lighting had to achieve, says, "We had to try to understand what this building was about when it was built. Lighting was a particular challenge because nobody wants to live in 19th-century lighting levels. And yet we were trying to create the ambience this building had when it was built."

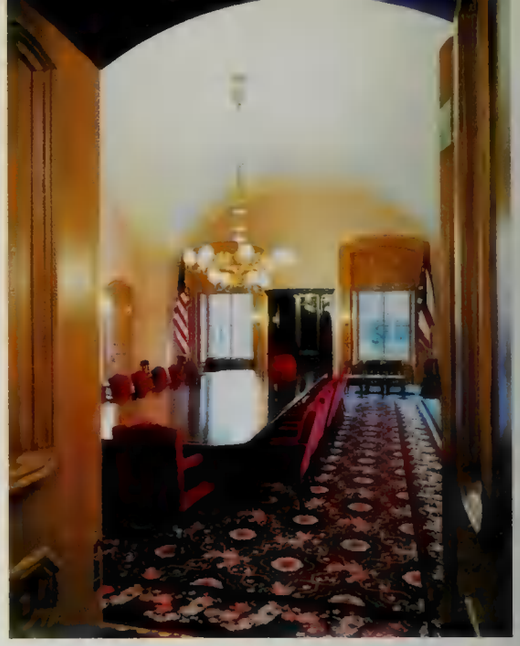
To begin, the architects pored over early drawings of the building, comparing them with what they found on site visits, trying to determine which parts of the building were original and which had been added. After extensive research and the completion of contract documents, gutting and reconstruction began. Electrical and HVAC systems were installed, rooms refinished, and windows and skylights reopened.

As a part of restoring the rooms, period fixtures would have to be re-created. "I think the real essence of what we were faced with was getting good quality light at a sufficient quantity out of a type of fixture that never really gave that kind of lighting," says Sullivan. While the fixtures that were built for the project have the appearance of the original gaslights, which may have been adequate as gas fixtures, they are probably not optimal for electric lamps. "It isn't all that difficult to go into a museum and put up a reproduction fixture. But this is one of the few statehouses that has been restored to this degree that still functions as the seat of government. The lighting has to work."



Project: *Ohio Statehouse Columbus, Ohio*
Owner: *State of Ohio*
Architect: *Schooley Caldwell Associates—Robert Loversidge, AIA, principal-in-charge; Terence Sullivan, AIA, principal engineer*
Associate Architect: *Moody/Nolan*
Project Historian: *Dr. William Seale*
Lighting Designers: *Gary Steffy Lighting Design—Gary Steffy, principal; Gary Woodall, project manager; Keith Fineberg, designer*
Electrical Engineer: *Schooley Caldwell Associates*
Project Manager: *Sherman Smoot Co.*
Historic Preservation Consultants: *Benjamin D. Rickey & Co.*







Re-creating the past

The architects, the lighting designers—Gary Steffy and Gary Woodall, of Gary Steffy Lighting Design—and historian William Seale, formerly the White House historian, searched for gas luminaires that could serve as precedents. Their primary source of inspiration was luminaires produced by the Cornelius and Baker Company in the 1850s and 1860s, including a fixture that once hung in the Michigan Governor's Office. "This was reproduced for the governor's office here, which is basically at a museum-quality level of finish."

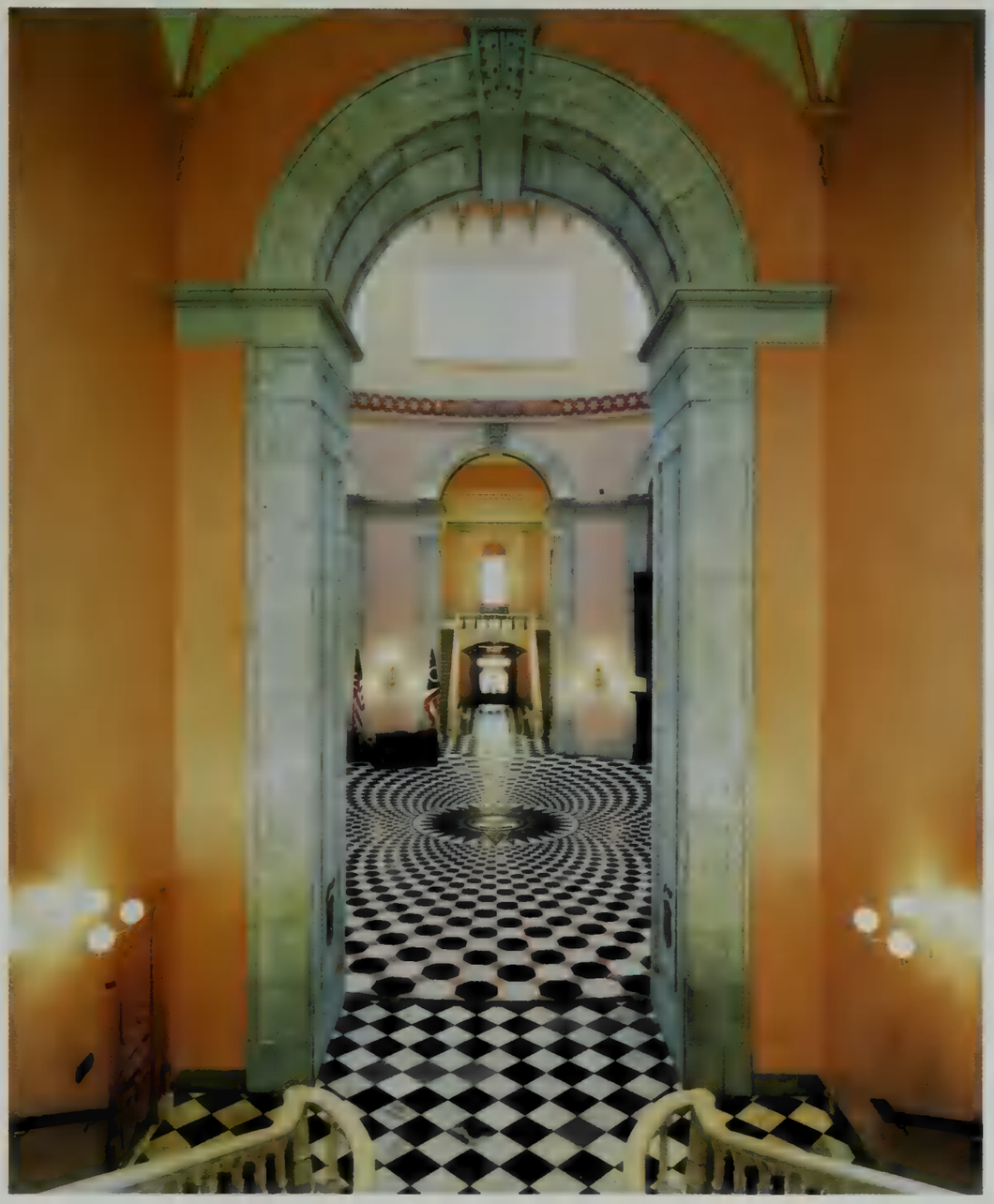
In the committee rooms, lighting had to satisfy requirements for both committee functions and closed-circuit-television taping of committee proceedings, about 30 footcandles. Lighting designers Steffy and Woodall did calculations to determine the quality and quantity of light that would be produced by various lamp configurations and chose 20W self-ballasted screw-in compact fluorescents for the chandelier and sconce globes. Bowl-type pendants used in other committee rooms were each lamped with six 300W asymmetric quartz uplights. The designs for both the chandeliers and the bowl pendants were based on historical precedent as the originals had long been lost.

The chandeliers in the House and Senate chambers were first designed as a larger version of the globe-type committee room chandeliers, but just before these were to be fabricated, a pen-and-ink drawing of Abraham Lincoln addressing a crowd in one of the chambers was discovered. The drawing captured the chandeliers in great detail, and a new chandelier was designed from the drawing. Clear, 106W traffic-signal lamps were chosen for the chandeliers because of their dimming capability and ability to reproduce a gaslight appearance.

The skylights in the chambers were reopened. To make the light coming through the laylights more consistent, four-ft-high, white-painted gypsum-board walls were built around the laylight perimeter. 40W dimmer-controlled compact-fluorescent strips were installed at the tops of the walls and angled downward. When the exterior light drops below a certain point, a photocell activates the fluorescents at a low level to compensate. If the daylight level continues to drop, the fluorescents' light output will increase proportionally. "We were able to get 10 to 15 footcandles out of this detail," says Woodall.

A space that was originally an exterior lightwell (photo, opening page) was enclosed with a skylight and adapted for vertical circulation by





The Senate Chamber (opposite left) is lit by chandeliers and skylights. These are supplemented by fluorescent lamps above the stained glass panels. Committee rooms (opposite right) are lit by re-created sconces and either globe- or bowl-type pendants. The stained-glass oculus at the top of the rotunda (above) was re-created and permits daylight to flood the dome. It is also backlit by compact fluorescents at night. Sconces six feet off the floor and MR16 lamps built into the springpoint of each stone arch (right) add two additional layers of incandescent light to balance the daylight. Chambers, committee rooms, and public spaces are on a preset dimming system.

the addition of an elevator and stairs. Balconies allow access into the interior of the building. Metal-halide torchères with round globes were added at the corners of the balcony rails, and compact fluorescent sconces were added to the walls next to the elevators. "Because this was originally an exterior space," says Woodall, "we used something from both the interior and exterior fixture vocabularies to make a transition."

Exterior lighting and project maintainability

At the building porticoes, bell-shaped glass pendants with 3000K metal-halide lamps are suspended inside each ceiling coffer to light the building steps and entries. These project light both up and down, "to fill in the porticoes as much as possible," says Woodall. On the plinths in front of the building, torchères patterned after some found at the Dayton, Ohio, courthouse were installed. These actually burn natural gas. The drum on the roof of the building was ringed with 100W metal-halide floodlights to bring it to life at night, and compact fluorescent lamps were added inside to backlight existing windows set into the exterior walls of the drum.

One issue that emerged during design was maintainability. Just as the original design of the statehouse was compromised by insensitive additions and remodeling, so could the integrity of the lighting design be ruined because of a lack of proper maintenance. Terry Sullivan says that his firm learned the importance of using a restricted palette of lamp types when doing embassy work overseas. "If there are too many lamps, the project won't be well maintained. Basically you could wrap up this job with about six different lamps," he says. In addition, the architects are preparing a computer program that has a maintenance schedule that lists what type of lamp goes into every fixture in the building. "The user can click on a room on the floor plan, and the program will tell them what fixtures are in the room, what lamps they take, and how many." ■

Manufacturers' Sources

Custom interior fixtures: *Excalibur Bronze Sculpture Foundry—William R. Gold*

Custom exterior fixtures: *Historical Arts & Casting*

Fixture restoration: *Brandon Thompson Restorations*

Dimming controls: *Lutron*

Exterior metal-halide pendants: *Holophane*

Compact fluorescent, incandescent, and metal-halide lamps: *General Electric*

Special fixtures: *Jefferson Art Lighting*

Light fixture contractor: *Messer & Sons*

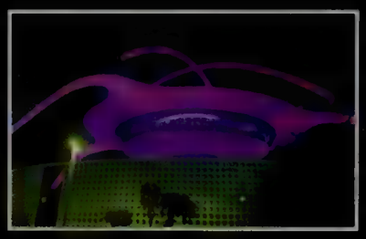
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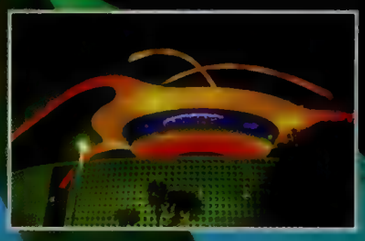


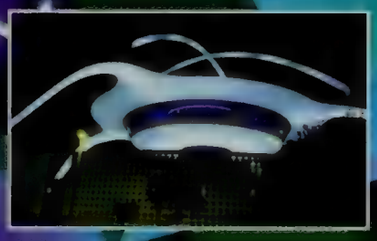
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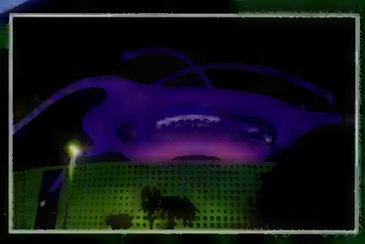
CIRCLE 42 ON INQUIRY CARD

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Lighting Design: Michael Valentino
Photography: Lewis Lee

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CIRCLE 46 ON INQUIRY CARD

Case Study: SONY CD Factory Presents a High-Tech Lighting Challenge

by Linda Sanford and Naomi Miller

A high-technology manufacturing environment offers the architect and lighting designer challenges that reflect the differing nature of the work done in the various spaces. And to meet those challenges successfully, designers must fully understand the exacting nature of the industrial tasks performed. The Lighting Research Center at Rensselaer Polytechnic Institute, Troy, N.Y., investigated the effectiveness of one particular lighting scheme by surveying the workers themselves as to their perception of the lighting. The findings of the Center's DELTA (Demonstrations and Evaluation of Lighting Technologies and Applications) team are presented here in a case study conducted at the SONY Disk Manufacturing plant in Springfield, Ore. The DELTA team evaluated how well the luminaires, light sources, and controls performed in meeting the illumination programs of five distinct manufacturing tasks. Designers can apply these concepts and the lessons learned to other industrial and assembly-plant applications with similar task-specific lighting requirements.

Opened in 1995 as a state-of-the-art manufacturing facility for digital optical disks, the SONY plant operates 24 hours a day. The 324,800-sq-ft facility sits on a 120-acre forested, parklike site, and with 350 employees, it currently produces as many as 6.5 million disks a month. Inside this building, a compact disk (CD) goes through the full production process. It begins with premastering customer input, then mastering a "mother" disk, then producing individual masters for replicating the disks in quantity. Finally, CDs are printed with artwork and packaged for shipping.

Linda Sanford acted as the project coordinator for Rensselaer Polytechnic Institute's survey of the SONY Disk Manufacturing plant. Naomi Miller, FIES, IALD, director of the DELTA program, participated in the lighting design of the SONY plant.

Continuing Education *This month's installment of the ARCHITECTURAL RECORD/AIA Continuing Education Series looks at a lighting study in a manufacturing plant that offers useful lessons for other technical projects. Use the following learning objectives to focus your study. After reading the article,complete the questions (page 172) and check your answers (page 174). AIA members may fill out the self-report form in this issue (page 174) and send it in for two AIA Learning Units. —Mark Scher, AIA Director Professional Education Products and Service*

Learning Objectives

1. *Identify two specific client lighting needs for the SONY Disk Manufacturing plant.*
2. *List five lighting objectives that are useful for almost every industrial and commercial project.*
3. *Assess the major lighting problems found at the SONY plant and briefly explain the solutions recommended for each that are applicable to other industrial projects.*



The SONY Disk Manufacturing plant in Springfield, Ore.

SONY's lighting program

The lighting in the SONY Disk manufacturing spaces was designed to accommodate the many visual tasks involved in CD production, and to meet clean-room standards for some of the manufacturing processes. In nonmanufacturing spaces, the lighting provides good task visibility with a minimum of glare while accentuating the architectural design and providing visual interest. The design team, Boucher Mouchka Larson, Architects and PAE Consulting Engineers, carefully coordinated architectural details with lighting and controls equipment.

There were five lighting objectives for the industrial areas: create work spaces with good task visibility and visual comfort for employees; minimize energy consumption by specifying energy-efficient lamps, ballasts, luminaires, and controls; achieve bright, visually stimulating spaces to help keep shift workers alert in early-morning hours; keep the initial cost of the lighting installation within budget; and install energy-efficient lighting products in order to qualify for utility-sponsored energy rebates. (The full study details energy-saving strategies.)

Lighting fixtures and lamp sources

The principal light sources used in the SONY facility are T8 4-ft rapid-start lamps with a color-rendering index (CRI) of 75, and a correlated color temperature (CCT) of 3500 K. The warehouse uses 400W clear

Project: *SONY Disk Manufacturing Springfield, Oregon*
Architect: *Boucher Mouchka Larson, Architects*
Lighting Design: *PAE Consulting Engineers; Naomi Miller, IALD*
Electrical Contractor: *L. H. Morris Electric, Inc.*
Site Sponsor: *Bonneville Power Administration; Craig Ciranny, team contact; Monica Shovlin, Sony contact*
Evaluation: *Rensselaer Polytechnic Institute Lighting Research Center DELTA team—Naomi Miller, program director; Russell Leslie, Mark S. Rea, reviewers; Linda Sanford, project coordinator; evaluation team: Peter Boyce (leader), Russell Leslie, Kathryn Conway, Craig Ciranny; Judith Block, publication manager; Claudia Hunter, editor*





Printing and replication areas (above) needed lighting that met clean-room standards and gave uniform illumination over floor areas. The staging area (right) is a long, narrow room, also with strict clean-room requirements. Here, technicians perform extremely varied, difficult, and critical visual tasks.

metal-halide lamps in glass-reflector, high-bay luminaires. Some luminaires also have 250W halogen lamps for instantaneous light in emergencies. The adjustable dock lights use 150W PAR38/CFL lamps.

All four-ft fluorescent lamps are operated on low total-harmonic-distortion electronic ballasts for energy efficiency and minimal interference with sophisticated electronic machinery. Metal-halide lamps are operated with high power factor magnetic ballasts. Sealed clean-room troffers and louvered direct/indirect pendant luminaires using T8 fluorescent lamps and high-performance electronic ballasts are used in the staging and replication, packaging, and shipping and receiving areas. All lighting circuits are controlled through a building-wide energy management system (EMS), with controls that permit switching off lighting circuits in unused areas.The lighting power density in the industrial side of the facility is 1.04 W per sq ft.

Illumination of printing and replication areas

The printing and replication areas required luminaires that conform to clean-room standards, and the lighting design had to provide uniform lighting over floor area to accommodate frequent changes in equipment and its layout. In this 13,600-sq-ft clean-room space, machines called solo-liners replicate CDs to exacting standards. Master disks called stampers imprint digital data onto blank CDs. The completed disks are then moved to a second bank of machines which silk-screen artwork onto them. Technicians set up, adjust, and maintain the replication machinery, and handle the finished disks. Printing operators enter codes to select ink colors, load the automatic machines, and briefly inspect CDs for quality and correct colors. A sample of disks undergoes molding defects.

[illegible] recessed 2-by-4-ft clean-[illegible] electronic ballasts to [illegible] to Class 10,000 stan-[illegible] ing air flow over [illegible] luminaires in the room depends on [illegible] evenly every part of the room at night, floor illuminance is 95 to 135 footcandles (fc) (1020 to 1450 lux [lx]), but where the solo-liners are concentrated, the machinery itself blocks light and lowers illuminance on the floor to 45 to 73 fc (490 to 790 lx).

Specifics of clean-room luminaires

Manufacturing techniques for delicate electronic media such as CDs require unusually clean environments called clean rooms. These are spaces in which the concentration of airborne particles, temperature, and humidity are controlled to specific requirements. Workers wear special clothing that helps prevent dust, dirt, and skin particles from entering the clean room. Clean rooms are graded into cleanliness classes according to how many particles of a specific diameter are allowed in a cubic foot of air. For example, a Class 10,000 clean room cannot have more than 10,000 particles of 5 microns or larger per cubic foot.

Luminaires for clean rooms are specially designed to permit a smooth flow of air from air-filtering systems over their surfaces. Luminaires should have enclosed, gasketed, sealed designs to minimize dust, mold, and microscopic particles entering the room. They should also be designed to keep contaminants from the plenum from entering through holes for mounting hardware and electrical feeds. Where magnetic ballasts are used, the magnetic flux can attract dust particles. One way to prevent this problem is to mount magnetic ballasts remotely, outside the clean room. Electronic ballasts do not attract dust particles.

Lighting the staging area

Technicians bring defective disks from the replication area into the staging area to inspect and categorize the type of error that caused the defect. The technicians then identify the production problem so they can make adjustments to the machinery. Visual tasks in this area are extremely varied, difficult, and critical. They range from spotting tiny aberrations in the CD's surface, to viewing VDT screens and equipment monitors, to observing the production floor through the large glass wall. The staging area is a long, narrow room with strict clean-room

requirements. The electric lighting is recessed 2-by-4-ft luminaires with prismatic lenses and three F32T8 fluorescent lamps. To aid in visual inspection, three 50W halogen gooseneck task lights have been installed by management.

Early-morning sunlight enters the staging area through high clerestory windows in the adjacent corridor for one to two hours a day most of the year. Unfortunately, the computer screens in this area face the windows. Direct sunlight bothers some technicians when it falls across their work space or creates a bright, reflected image on their computer screens. Technicians who work the midnight-to-noon shift report experiencing much more difficulty with glare than those who work the noon-to-midnight shift. With daylight, vertical illuminances on screens are as high as 210 fc (2300 lx). Even when there is no direct sunlight, the reflection of the clerestory windows obscures workers' view of computer screens and the view into the replication area. At night, however, electric lighting adds no more than 46 fc (490 lx) vertical illuminance to screens, making them much more readable.

TASK VISIBILITY IS NOT ALWAYS IMPROVED WITH MORE LIGHT—AND WINDOWS CAN MAKE IT HARDER TO SEE.

Screen visibility varies according to the specularity (shininess) of the screen, the maximum luminance (brightness) of the screen, and the comparative luminance of the characters against their background (contrast). Highly specular screens reflect far more of the distracting window brightness than screens with antireflection coatings. The window reflection is also less noticeable on higher-luminance screens. Despite the reflections, technicians like being able to see the sky and tell what time of day it is, even though they don't have a view of the ground.

When daylight is not available, horizontal illuminances on both sides of the room at the 3-ft-6-in. countertop are 82 to 95 fc (880 to 1030 lx), sufficient for paper tasks anywhere in the staging area. At midmorning on a typical partly cloudy day, daylight contributes up to an additional 800 lx to these surfaces.

When technicians make their first check for imperfections, they hold a CD slightly above eye level, using the reflection from overhead luminaires to reveal defects on the shiny surface. They look for tiny bumps, dimples, fibers, and particles of dirt on the disks to determine if the replication machines are creating problems that must be corrected. Several technicians also use the halogen task light to produce a high-intensity reflection for a closer check. Technicians report that neither the overhead lighting nor the task lighting is well suited to their inspection tasks. The DELTA team observed that the task of detecting a variety of extremely small, low-contrast details requires a variety of lighting conditions. A specialized viewing booth would help make these flaws more visible. Technicians must also see inside the machinery to make adjustments and repairs. The interiors of the machines are not lighted well enough either by lighting built inside the machine's glass enclosure or by ambient light, so some technicians report that they use flashlights for task lighting.

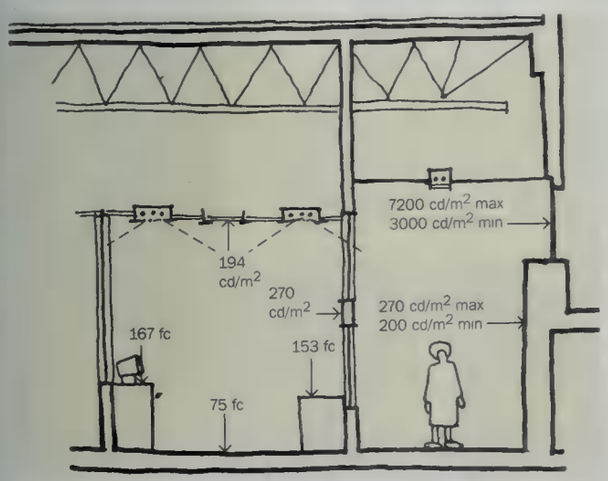
Packaging area program

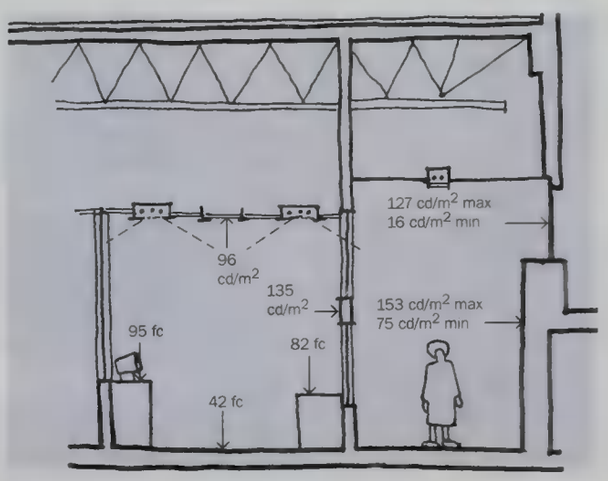
The designers provided evenly distributed illuminance on the workplane in the packaging area with minimal glare for a variety of packaging tasks, including inserting CDs and paper liner notes into clear-plastic cases, wrapping individual cases in cellophane, boxing the cases, and preparing them for shipping. Much of the work is highly automated, but 18 employees per shift visually inspect, correct, and stock the machinery. The room is lighted entirely with three-lamp T8 recessed 2-by-4-ft lensed troffers on 8-by-8-ft centers. High-frequency electronic ballasts eliminate flicker so that moving machinery does not appear to stop or change speed. The room has no windows. Although the lighting layout is similar to that in the adjacent replication and printing area, the machinery is lower in height and spaced farther apart. As a result, the machinery blocks less of the light and the illuminance on horizontal task surfaces remains fairly high (108 to 115 fc [1160 to 1240 lx]).

Warehouse lighting program

In the warehouse space, the fixtures had to provide uniform vertical illuminances on shelving in warehouse aisles to aid in reading labels on shelved materials. The space has 35-ft-high ceilings, and provides storage for manufacturing materials as well as finished products. Because the facility is new, only 25 percent of the 58,000-sq-ft warehouse space is currently being used, but SONY plans rapid expansion. Two to four employees on each shift track inventory storage and retrieval. Their desks are located in the warehouse, and they perform both paperwork and computer-screen visual tasks. Forklift operators moving materials on pallets need to read labels quickly on both pallets and the vertical shelving members.

Glass-reflector luminaires with 400W clear metal-halide lamps





Early-morning sunlight enters the staging area via high clerestory windows, placing glare on computer screens a few hours of every day. At night, lighting adds less than 46 fc of vertical illuminance to screens, making them much more readable.

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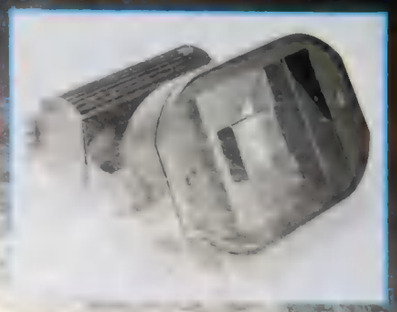


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CIRCLE 44 ON INQUIRY CARD





In the warehouse, left, forklift operators moving materials on pallets need to be able to read shelf labels quickly. In the shipping area, above, light from the luminaires reflects off white-painted ceiling, trusses, and walls to produce very uniform illuminances.

are pendant-mounted near the bottom chord of the ceiling trusses. The luminaires are spaced on 20-by-20-ft centers. To avoid most of the glare and visual-comfort issues associated with high-bay industrial lighting, the design team specified a white-painted ceiling and luminaires that direct 18 percent of their light upward. This combination lowers the contrast of the bright light source against the ceiling, reducing the sensation of glare. The bounced light from the ceiling helps make light levels more uniform and also softens shadows cast by objects below. Though ranging from 17 to 82 cd/m^2 (candella per square meter), luminances on the ceiling appear fairly uniform.

Four high-bay storage shelves are currently in use, creating one full-height aisle. The lighting has been coordinated with the shelf layout so that luminaires are located directly above the 6-ft aisle. Vertical illuminances are relatively uniform (less than 8 to 1 maximum to minimum) over the height of the shelves, making it easy for forklift operators to see the package labels on the lower shelves. Illuminances on the floor of the aisle are 15 to 21 fc (160 to 230 lx). In areas of the warehouse without tall shelving, floor illuminances are higher and more uniform, from 32 to 37 fc (340 to 398 lx).

Lighting for shipping and receiving

In the shipping and receiving areas, lighting was designed to provide evenly distributed illuminance for easy viewing of labeled materials loaded onto and unloaded off of trucks. Here, workers retrieve an order of finished CDs from the warehouse, assemble it into boxes or pallets, and load it onto trucks through one of 12 loading bays. Raw materials for manufacturing are also received here. Visual tasks include reading package labels, filling out paperwork for dispatching, using computers to track orders, and loading materials onto and off of trucks.

The ceiling height is 20 ft. Economical T8 fluorescent direct/indirect pendants are suspended 16 ft above the floor in rows 10 ft on-center. Light from the luminaires reflects off the white-painted ceiling, trusses, and walls to produce very uniform illuminances. Floor illuminances range from 31 fc (330 lx) near the loading doors to 43 fc (460 lx) in the center of the space. The luminaires emit 65 percent of their light upward, making the space appear large and bright. Ceiling luminances of 54 to 96 cd/m^2 help reduce the contrast between the luminaires and the surrounding ceiling. The luminaires have opaque metal sides and downlight louvers with a 45 degree cutoff angle, dramatically reducing the sensation of glare.

Swivel-head dock lights with incandescent PAR lamps are wall-mounted at each loading bay to aim light into truck cavities. The extendable arm of the task lights does a good job of projecting light for the workers walking into trucks with a load. However, workers complain of "extreme glare" once they turn around because they are now facing a high-candlepower light source that is very close to their line of sight. As a result, workers in the shipping and receiving area report that the lighting for loading and unloading trucks is inadequate and uncomfortable (see "Lessons learned," page 128).

Project evaluation

The DELTA team surveyed employees in several of the facility's manufacturing areas to find out about their impressions and experiences with the lighting. DELTA wanted to know about task visibility, visual comfort, problems employees noticed with the lighting or windows, and overall satisfaction with the lighting.

Employees from several shifts completed surveys in each of the areas DELTA evaluated. In addition to rating their agreement with a series of statements about the lighting (see chart, page 128), they checked lighting problems they perceived from a list. In areas with significant daylight contributions, such as the staging area, they were asked to rate the lighting for both day and night.

Generally, all the employees in the manufacturing areas approved of the lighting design. Workers in both midnight-to-noon (day) and noon-to-midnight (night) shifts in all areas liked the lighting and found it comfortable. However, technicians who perform exacting visual tasks found the lighting less than satisfactory.

Replication and printing. More than half of the technicians in

LIGHTING SURVEY

RESPONSES FROM A.M. AND P.M. WORKERS ARE COMBINED

PERCENTAGE OF PEOPLE WHO AGREE	REPLICATION & PRINTING	STAGING	PACKAGING	WAREHOUSE	SHIPPING & RECEIVING
I LIKE THE LIGHTING OF THIS AREA	71	77	66	70	67
THE LIGHTING IS COMFORTABLE	78	73	61	60	67
THE LIGHTING HELPS ME SEE CLEARLY	44	63	81	60	67
HAVING DAYLIGHT IS IMPORTANT	—	65	—	—	—
PERCENTAGE OF PEOPLE INDICATING THE FOLLOWING LIGHTING PROBLEMS					
TOO LITTLE LIGHT	17	0	7	20	16
TOO MUCH LIGHT	10	12	15	0	0
GLARE FROM THE ELECTRIC LIGHTING	15	6	30	30	16
GLARE FROM THE SUNLIGHT	17	25	3	10	0
SHADOWS	19	19	5	20	16
PATCHY LIGHTING	24	6	5	10	0
FLICKER	0	0	8	0	0
POOR LIGHT COLOR	5	0	12	0	0
REFLECTED PATTERNS OF LIGHT	5	12	3	10	16
OTHER	5	0	8	0	0

day and night shifts in this area reported that they could not see everything they needed to see quickly and clearly. Among day workers in the replication area, 30 percent reported a problem with glare from sunlight and patchy lighting, and 20 percent complained of strong shadows. The printing-area technicians said that the overall lighting was not designed for their specific visual tasks, such as identifying problems inside the printing machinery, visual inspection of the completed printed disks, and color matching to ensure that printed colors match artwork colors.

Staging. More than a third of the technicians in the staging area also reported that the lighting did not enable them to see everything they needed to see clearly and quickly. They said they wanted better lighting to help them with their inspection tasks. The day workers were less satisfied than the night workers. They said the reason was that the early-morning daylight from clerestory windows created reflected glare on computer screens and glass walls. Day workers also complained about direct glare from the morning sun (57 percent) and the strong shadows cast by the sun (29 percent). But because the clerestory windows face east, direct sunlight is a serious problem for only a few hours in the morning.

Packaging. In the packaging area, visual tasks are less demanding than in the staging, replication, or printing areas. Employees in this area were generally satisfied with the lighting, found it comfortable and reported that they could see quickly and clearly. The packaging area has no windows, so employees did not complain about daylight, but some did report glare from reflections of the overhead lighting on shiny packaging materials. Others complained of annoying glare from light scattered through the edges of their safety glasses, or [illegible] was a problem for 15 percent of

[illegible] workers were quite satisfied [illegible]lent for driving and using a [illegible] in this area drew no com- [illegible] reported glare when [illegible] while standing on [illegible]ard but to see the bare

[illegible]g. Some [illegible] problems were reported to the survey team in the shipping and receiving areas, particularly at the loading docks. When employees drive forklifts out of dark truck interiors, they report glare or even "blinding" from the incandescent PAR-lamp task lights that are mounted at the edge of the loading dock. Employees working at loading or unloading trucks find that their own strong shadows interfere with their ability to see objects and labels at the far end of the truck.

Lessons learned

Task visibility is not always improved with more light. In the case of inspecting CDs for irregularities, high ambient-light levels did not improve visibility. It is often more economical in terms of equipment and energy to design a special viewing booth which can enhance the visibility of surface or substrate flaws through side lighting, a selective light spectrum, specular reflections, diffuse lighting, or other visual inspection techniques. This viewing booth should be specifically designed for the application and the characteristics of the flaws that technicians must detect.

Choosing the right computer screen can solve VDT lighting problems. The surface characteristics of a computer screen affect its visibility. A screen with high luminance (brightness) and a good antireflection coating can reduce reflected glare to such an extent that almost any electric lighting system will work well. It is only when poor-quality screens are used that design of the lighted environment is critical.

Windows can reduce visibility. Reflections of bright windows can seriously interfere with visibility through interior panels of glass or with visual tasks performed on computer screens. Although employees enjoy the ability to see outdoors, glare-control devices such as blinds or shades should be installed to block the offending light at the time of day or year when direct sun penetrates the space.

Uplight on ceilings improves warehouse lighting. The uplight on white-painted ceilings serves several important functions. It makes the luminaires appear less glaring because it reduces the contrast between the luminaire and its background. It provides soft, bounced light at the task level, which helps wash out distracting shadows. It provides greater vertical illuminance on storage shelves. Finally, it provides a psychological lift because the space appears brighter and more cheerful.

Dock lights often provide poor seeing conditions. Traditional dock lights do a poor job of lighting truck cavities because they use a narrow-beam PAR lamp to direct light deep inside the truck. Workers, forklifts, and materials cast strong shadows that get in the way of the light beam, causing uncomfortable seeing conditions for workers as they come out of the truck. An improved dock light design would use a lower-brightness lamp and a larger reflector system to provide more diffuse light into the truck. ■

Manufacturers' Sources

Pendant direct/indirect luminaires and recessed three-lamp fixtures (shipping and packaging areas): *Lithonia*

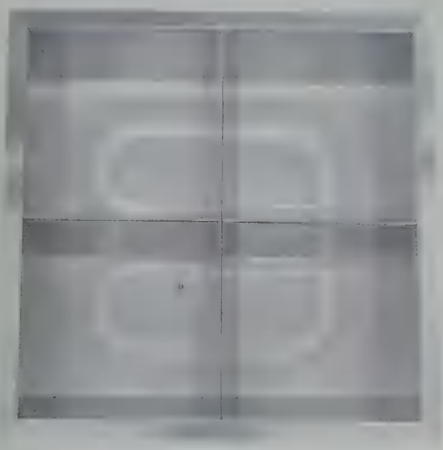
Clean-room fluorescent luminaires in replication area and adjustable dock lights: *Guth*

Ballasts: *Holophane and Advance*

Gasketed luminaire (warehouse): *Holophane*

Energy-management system: *Lithonia*

For information about DELTA publications and to obtain a copy of the complete SONY Disk Manufacturing survey report, call 518/276-8716, fax 518/276-2999, or E-mail lrc@rpi.edu.

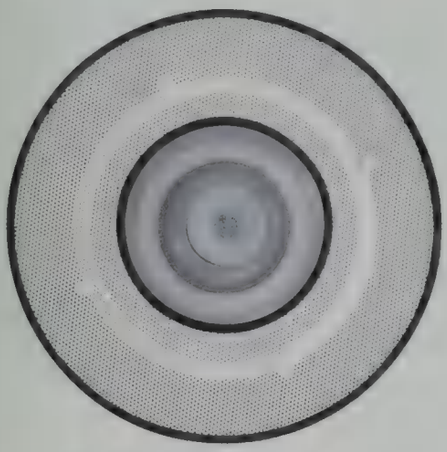


Quadrant 2D
12" Square

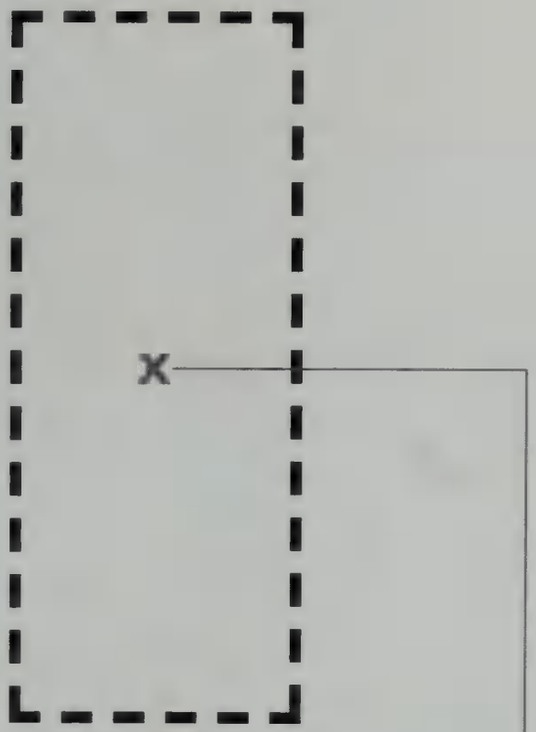


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Residential Lighting Control Strategies for Every Budget

by Lindsay Audin

Too often, homes are lit the same way they are decorated: in an ad hoc fashion, with furnishings added as needed. Next time your clients are ready for a change, consider all the options in advance, including choices for how they'll control the lighting. Whether for aesthetics, safety, or security, a variety of options is available for both homeowners and architects.

There are two basic control methods for home lighting: on/off switching and dimming. Strobing, color changes, and flashing neon are generally considered inappropriate for residential use. Within those parameters are three general options: grouping fixtures by circuits; time control; and motion sensing. Mixing and matching these choices provides many ways of influencing the mood and appearance of a room.

Today's control options can add a new dimension to residential architecture. Combining controls with built-in lighting is an especially good way to create a variety of useful and dramatic effects. For example, miniature low-voltage lamps, hidden on the edges of a staircase (see photo), are switched on by a concealed motion sensor, adding flair to the otherwise mundane task of stair climbing.

The sophistication of lighting controls is most often influenced by budget. Fortunately, the lighting industry offers a variety of equipment choices, many of which are relatively inexpensive (i.e., less than $20 per control point). An examination of the choices is essential before planning an installation. Not all systems are compatible—either with each other, or with compact fluorescent lamps—and a little research up front goes a long way toward avoiding disappointment later.

The least costly ways to control home lighting include plug-in devices that use power line carrier (PLC) technology, the best known of which is the X-10 system, manufactured by X-10 USA of Closter, N.J. Control signals (from a central panel) pass through home power wiring to plug-in relays for fixtures. Switch replacements that incorporate timers or sensors (to cycle lighting based on clock settings, elapsed time, or sensed motion) are another low-cost way to control fixtures. Several battery-powered wireless systems use short-range radio signals instead of wires to control plug-in relays.

At the other end of the investment spectrum are units using low-voltage wiring and built-in relays that are usually installed during major renovations or new construction. Higher-end dwellings may be served by units that look like miniature control panels. Often seen in conference spaces, better restaurants, and auditoriums, such panels have enough memory to recall many preprogrammed "scenes," or user-defined groups of fixtures and light levels, which may be initiated by the touch of a button. Using a variety of signal communication technologies, these devices centralize all control functions, including manual and/or programmed fixture choice, automated dimming, time sequencing, and motorized blinds.

In my own home, I use the plug-in X-10 system to automatically turn lights and heating/cooling units on and off; individual switch timers for built-in fixtures (e.g., porch, basement, and closet lighting); a wireless switch to control a single fixture among several fixtures in my living room; and occupancy sensors for lighting in irregularly occupied spaces, including stairwells and the outdoor parking area.



Low-voltage light strips on the stair risers are activated by a concealed motion sensor. The cat is an optional component.

Some switch replacement units incorporate incandescent dimmers—which are not compatible with most compact fluorescents. Fortunately, special equipment is available for controlling and dimming fluorescent lighting. A recent upgrade of my living room included dimmable fluorescent cove lighting, equipped with electronic ballasts controlled by inexpensive infrared dimming technology and activated by a hand-held remote.

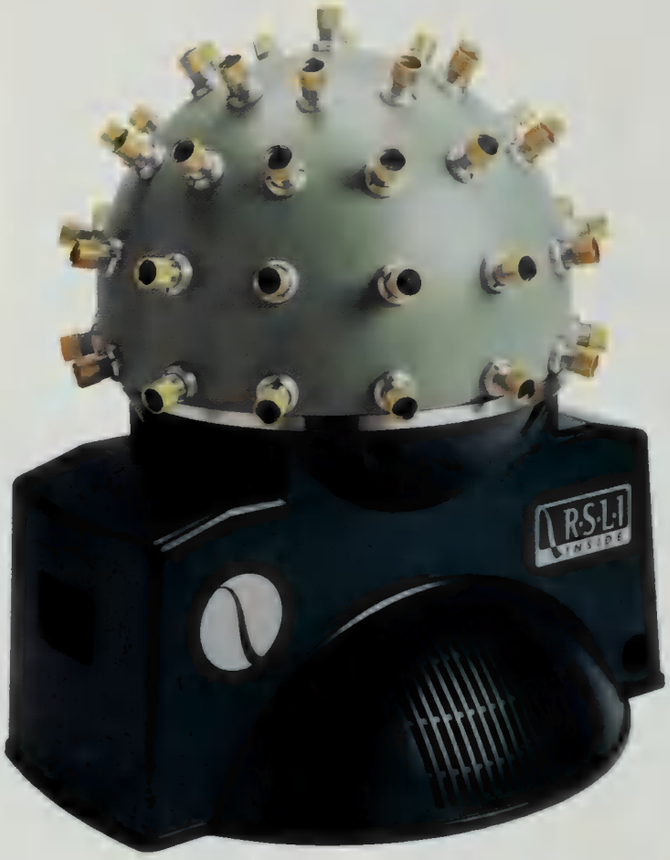
The growing movement toward home automation has spawned a communications and control protocol known as the Consumer Electronic Bus (CEBus). When installed, the CEBus allows remote control of electrical systems, including lighting, by telephone and/or power-line signals from inside or outside the home.

Designed with the future in mind, the CEBus can also be used to control electrical devices, such as appliances and HVAC units, in conjunction with peak demands on the utility grid. Under a real-time pricing tariff, such control could even help cut electric bills. Vendors of centralized lighting control systems are adopting the CEBus standard, and many builders of new homes are now offering this system as an option to home buyers.

A good way to get an overview of both the technologies and the available products for controlling home lighting is to visit the HomeTeam Web site at http://www.hometeam.com/lighting/man.htm. Listing both the options and their price ranges, this site provides links to many manufacturers' sites and/or their direct contact information. X-10 has its own Web site at http://X10.com. Those seeking more background on the CEBus standard can go to http://www.cebus.org. ■

Lindsay Audin is president of Energywiz Inc., an energy consulting firm, and lighting research consultant to E-Source, a Colorado-based energy consulting group.

LIGHTFAIRBRIEFS



▲ No more light bulbs
The Perpetual Light Pump uses one 1,000W lamp to illuminate multiple-fiber optic endpoints and is said to be able to replace up to 68 conventional 100-watt light bulbs. The light pump is available in over 75 configurations and can be fitted with a number of fixtures. 919/319-7575. Remote Lighting International, Inc., Morrisville, N.C. **CIRCLE 272**



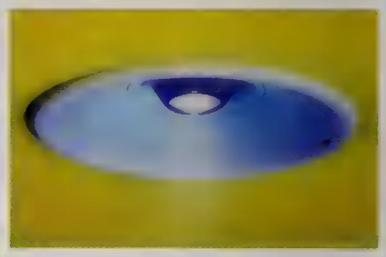
▲ Showing off merchandise



▲ Combo sign
A combination exit sign and emergency lighting unit, the PEX Combo has a smooth-edged thermoplastic construction and removable directional arrows. The unit is prewired. 510/562-3500. Prescolite Moldcast, San Leandro, Calif. **CIRCLE 274**

▼ Solving problems
The Boréns line of original design luminaires uses two-component lighting to solve common office lighting problems. Ceiling, suspended pendant, and wall sconces are available. 914/937-4433. Luxo Corporation, Port Chester, N.Y. **CIRCLE 275**

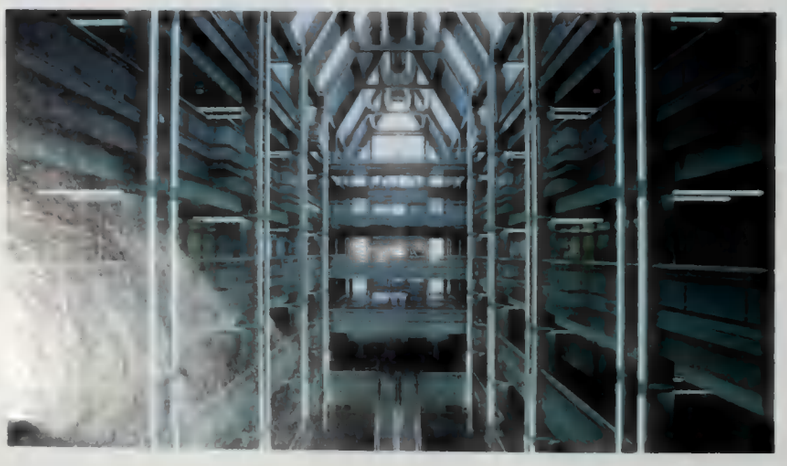




▲ Unidentified flying objects?
Recessed low-voltage UFO metal downlights, available in 4-in. or 6-in. diameters, are usable with MR11s and MR16s, and can be accessorized with clear, frosted, and colored-glass lenses, as well as colored-glass conical insets. The lighting unit can be permanently installed in insulated and noninsulated ceilings and relamped from below. 210/227-7329. Lucifer Lighting Company, San Antonio, Tex. **CIRCLE 276**



► Fashion and function
The Angled Sconce series of Lightframes features individually movable locking frames as well as an adjustable, hinged wall bracket. Available in various sizes, configurations, and finishes, they incorporate the latest in lamping technology, from MR16, ALR, and AR70 to AR111, PAR30, PAR 36, and PAR38 lamps. The lightframes are constructed of aluminum plate with stainless steel swivels, and are available in standard and custom finishes, including brass, bronze, and powdercoated. 425/823-4560. Charles Loomis, Inc., Kirland, Wash. **CIRCLE 277**



◄ The museum brightens up
When 3M combined their Light Pipe, using Optical Lighting Film, with Fusion Lighting's electrodeless microwave sulfur lamp, the Smithsonian National Air and Space Museum saved, according to 3M, 5kW of energy a day and no longer needed 94 conventional mercury lamps. The Light Pipe carries the focused, bright, high-quality light supplied by the sulfur lamp and distributes it evenly over large areas. 612/733-4623. 3M, St. Paul, Minn. **CIRCLE 278**

Music to your eyes

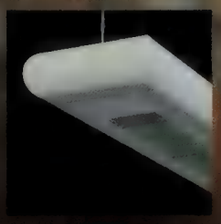
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88.4% efficiency
Peak candela @ 115°
Meets RP-1





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87.4% efficiency
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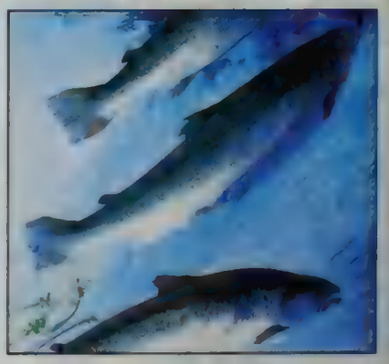
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If you are interested in the details of the Headwaters agreement and our efforts to save this forest, visit our internet site at www.palco.com. If you have any questions, write to us; we would like to answer them.

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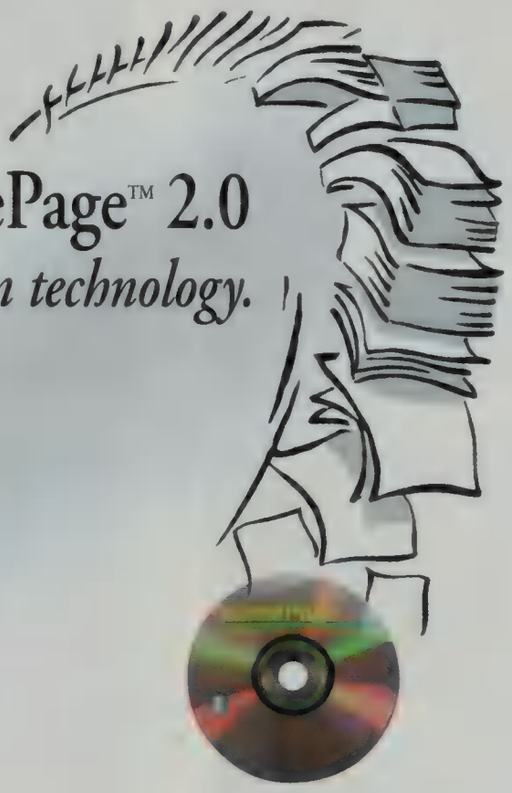
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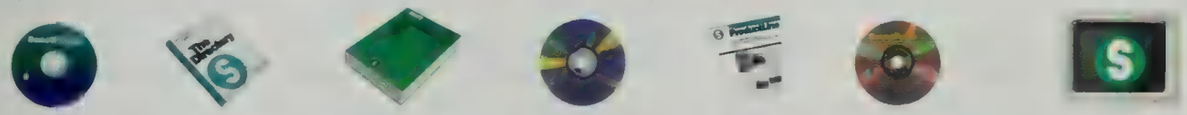
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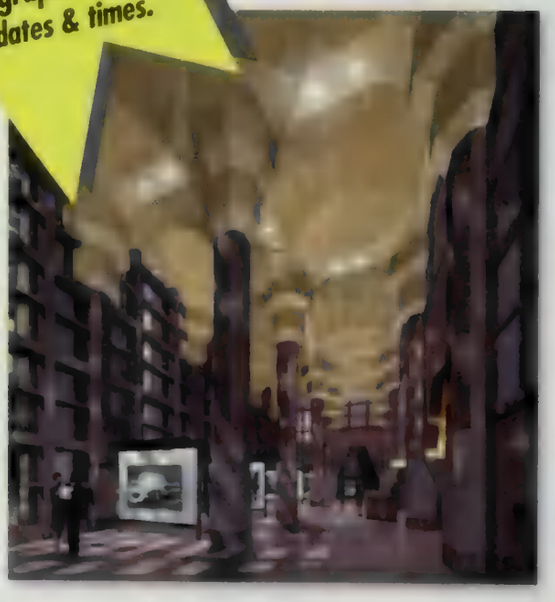
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A/E/C Systems "Nets" Surprises

NETWORKING AND THE INTERNET MADE NEWS AT A/E/C SYSTEMS THIS YEAR. BUT BEHIND THE SCENES, THE DOMINANCE OF MAJOR PLAYERS WAS CHALLENGED.

by Steven S. Ross

As if you didn't know, it's official: the Internet will change the way you do business. At this year's show, many vendors offered ways to automatically publish project drawings and other files on-line, to speed up design cycles, and to more easily keep track of changes. Some also found ways to allow design-team professionals and others to interact with the drawings as well, collaborating by redlining or editing them. All three keynote panelists—the CEOs of Autodesk and Intergraph, and Keith Bentley, the technical whiz behind MicroStation—pushed their Internet visions. In terms of user functionality, their visions were the same, differing only in some technical details.

There's little question about the drawing formats, either: most will be based on AutoCAD DWG files, and some on Bentley MicroStation DGN. But events at the show suggest Bentley and Autodesk have some former friends to fight, as well as each other (see box, page 142). And smaller CAD vendors showed some nifty new software of their own, especially for solids modeling, animation, and 3D visualization.

Nemetschek, Autodesk, Bentley, Graphisoft, and others selling high-end CAD all signaled that small, continual upgrades would be the norm in the years to come. They all hope to push users toward "subscriptions" for product-maintenance plans—raising the cost of CAD.

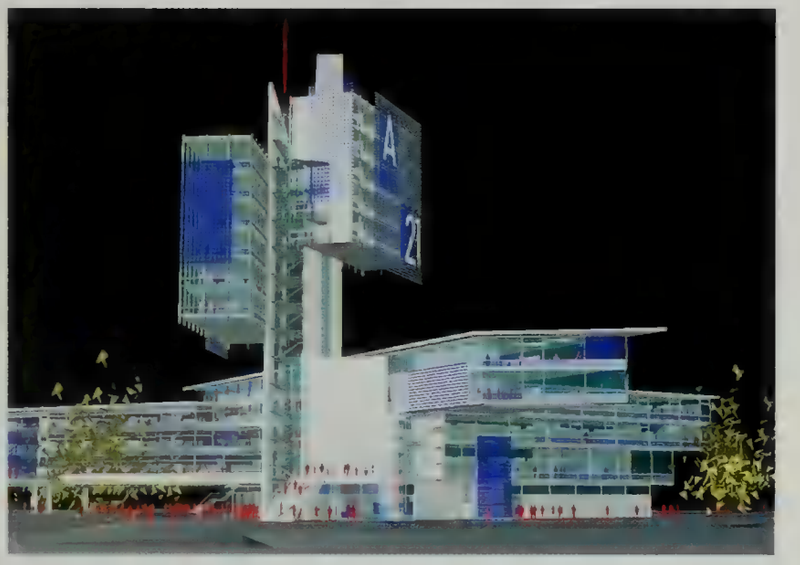
The march toward the Internet started a year ago, when Bentley and Autodesk announced "publishing" solutions at A/E/C '96. By last fall both had come up with software that could take even thousands of drawings and index them for retrieval on the World Wide Web. You first view the files as images that can't be modified. The systems can be set up so that, once you find what you want, you can call for the much larger and harder-to-transmit original file. You can also, within some limits, use the Web to scan vendor catalogs and bring details into your own drawings.

FASTER NETWORKS WILL SEND FILES BOUNCING FROM OFFICE TO OFFICE.

Bentley is offering a "digital signature" authorization system for tracking changes in drawing files. You don't have to place your files on an open network, either—you can use an internal network. If the internal network uses common Internet software, it's called an "Intranet." Otherwise, it's a LAN (local-area network) or WAN (wide-area network). Bentley actually started including a Web browser, from Spyglass, inside MicroStation last fall. (But at the Bentley booth this year, staff tended to demo with Netscape Navigator as the browser instead.)

Internet collaboration

Many vendors, including small ones that have been offering LAN-based "internal" file-tracking systems for years, announced Internet/Intranet solutions that do more than "publishing." Some can integrate CAD, billing, and project-planning data into one on-line database. And as networks get faster, whole projects' worth of files will soon be bouncing from office to office. Among the latest offerings:



Design rendered in Nemetchek Allplan; note structural details.

Archibus/FM, the facilities-management people, showed a new I*Net Toolkit that allows employees or authorized consultants to create work requests from any Web browser, or query the facility-management database to check the status of a project. Version 10 of the Archibus/FM package was released at the show.

Bentley's ModelServer, which has been available since last year, can pull project files in AutoCAD DWG or MicroStation DGN format into a Web server system and publish those formats, or images of the files in JPEG, PNG, CGM, SVF, or VRML formats, across the Web. At A/E/C Systems, company officials said they were investigating the licensing of Autodesk's 2D DWF format as well. DWF is a compressed format that can be used for markups and can be linked easily to other files. Autodesk has a product with similar functionality. Cadscape's Port, based on the Oracle database, helps automate importing of AutoCAD and MicroStation files (and any extra files they refer to) into the PC DOCS document management system. One nice feature: it maintains original file names. You can use this sort of software on a network to find and fetch documents, as the "back end" of a system that also allows viewing.

Cimmetry's AutoVue Professional Version 15 viewing and markup software was shown for the first time at the show. Cimmetry has a Netscape Navigator plug-in that allows remote users to view and print files and to mark them up. (In Netscape parlance, a plug-in is an add-on helper application that enhances Navigator's ability to handle specific types of files.) The markup information is kept in separate files, apart

from the original CAD files. But they are indexed back to the originals. Cimmetry can read 150 file formats.

Cyco's AutoManager View 2.0, announced at the show, allows viewing, redlining, and printing of more than 200 file formats including AutoCAD R14 and Autodesk's DWF and Mechanical DesktopWeb formats. It can also work with Internet Web browsers. As with Cimmetry, View is often licensed for embedding in other vendors' products as well.

Framework Technologies showed its Aspects SiteBuilder for the first time. This software offers an easy way to gather project files into a Web site. The system is geared toward indexing and retrieving entire files, rather than smaller representations. But you can put pictures, text, and CAD files saved in more compact formats (DWF, for instance) in the same site if you don't have a network with the bandwidth to easily handle large, original CAD file formats.

Graphisoft's ArchiCAD for TeamWork allows users to share files across a network. One user can be editing one part of a drawing while an associate works on another section. The interface is easy: the users draw fences around what they need to work on. In addition, users can be on a Macintosh while others use Windows 95 or NT. Kamel Software showed its FastLook Plus and FastLook DBMS for publishing documents on the Web, and for redlining. It is particularly easy with FastLook to create hyperlinks in files you are viewing, to "connect" them to other files. As with Cyco, Cimmetry, and others, this software handles images, text, and other non-CAD files, as well as CAD.

Kozo Scandinavia showed DRA-CAD, a Java-based Web browser plug-in that downloads and installs itself so users can view DWG, DXF, or HP-GL files. HP-GL is fairly compact compared to DWG, allowing quicker downloads. The big advantage of the system, though, is that it can be quickly set up on a remote user's desktop, to solve immediate needs in a crisis. Kruse Continuum includes business-development and file-publishing tools. Internet access is due by September. One twist: this package allows you to put project files on CD-ROM for easy transport. But it isn't cheap: $9,800 for an authoring seat, five network seats, and 200 CD distribution licenses. Synergis showed a new release of its NFM3 document manager. It's not a Web product—the interface looks like Windows Explorer or File Manager—but it's very flexible on internal LANs.

OnSite Computing offered one of the funkiest booths (a beach scene, complete with beach chairs, sand, surfboards, and a Volkswagen Microbus) and a clever idea for file searching on your Intranet: AltaVista's search engine. OnSite, which developed the technology for AltaVista (the most popular search engine for the World Wide Web), calls its Intranet solution for AutoCAD drawings DrawingSurfer. The price is $39.95 for the plug-in at the user end. You can use AltaVista Tunnel as the "publisher" on the server side; that's where OnSite hopes to profit most.



Viewing AutoCAD drawing in Internet project database for Heathrow. Note links to other items (at left on screen).

CAD innovations

Autodesk may own two-thirds of the CAD desktops, but the battle for the hearts, minds, and wallets of architects is certainly not over—at least if this year's A/E/C Systems is any indication.

Keith Bentley, the technical whiz behind MicroStation, explained how he hopes to bring "object intelligence" to his product. This would allow a drawing of a door, for instance, to act like a door "object" rather than as a collection of lines. Bentley will use the Java programming language to modify its MDL language. The result will be JMDL, in MicroStation/J. It's due mid-1998.

This fits with Bentley's strategy to continue to make MicroStation available on many different types of computers. (AutoCAD 14, in contrast, will run only on Windows 95 and Windows NT machines.) Like MicroStation, Java is designed to run on many different machines. But Bentley will have to modify Java somewhat. That means the Java code will be at least partially nonstandard, so each machine-specific version of MicroStation will have to compile the Java code contained in an incoming MicroStation file.

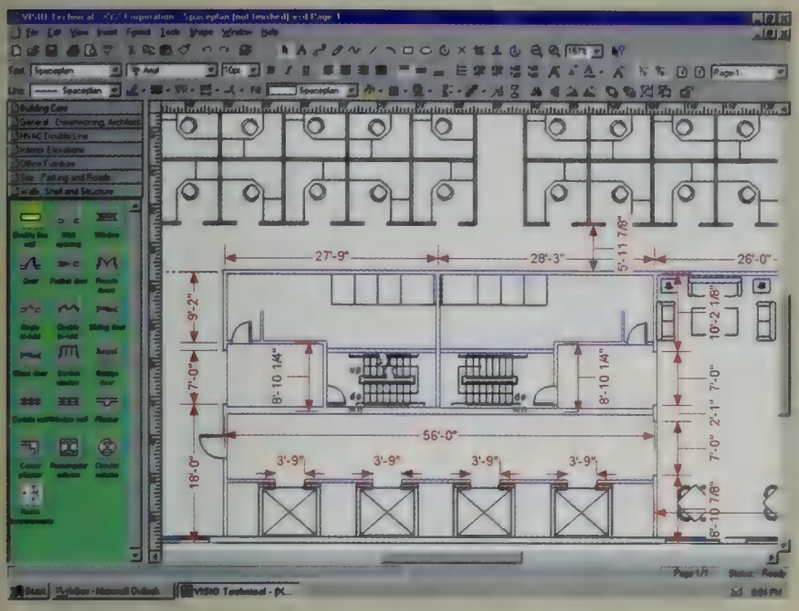
Autodesk's version of object intelligence, ObjectARX, works by putting most of the programming into separate files called DLLs. That way, the drawing files themselves can be fairly small and more easily transmitted over networks. Autodesk clearly has a lead in object technology, but this lead hasn't yet translated into many add-on products. Even Softdesk's Auto Architect 8.0 add-on won't get ObjectARX technology until the fall. Many new niche products were introduced this year, especially for animations, and older CAD packages with small but passionate followings were upgraded. Two packages using AutoCAD's own file format caused a buzz. One of these, from Visio, is discussed in greater depth on page 142. The other, Vdraft from SoftSource, is meant more as a supplement for AutoCAD and as an "engine" for vertical applications than as an outright AutoCAD replacement. Although it reads AutoCAD R12 and earlier files (an R14 reader was announced at the show), most AutoCAD add-ons won't work with it. Its command structure is almost identical to AutoCAD's, but with better on-screen help and the ability to open multiple files. It also runs on small machines; a 486-class with 16 MB of RAM works fairly well.

"OBJECT INTELLIGENCE" WOULD ALLOW A DRAWING OF A DOOR TO ACT LIKE A DOOR "OBJECT" RATHER THAN AS A COLLECTION OF LINES.

These AutoCAD clones have good genes. Vdraft developer SoftSource, for instance, developed the original Drawing Exchange Engine (DXE, the standard read-write AutoCAD programmer's interface used in many other CAD packages), and AutoCAD add-ons (Drawing Librarian and Block Librarian).

Visio also showed privately the 5.0 version of Visio Technical, the 2D technical drawing program for which it is best known among architects. It comes with numerous prefabricated shapes and an underlying database engine. The new version will read and write AutoCAD DWG files. Visio has had some problems with AutoCAD 13 translations in the past, but has licensed translation technology from MarComp, the biggest vendor in the field.

Virtus showed ConceptCAD, a new (it was due to ship in June) architect-specific tool for doing quick conceptual 3D modeling at the start of the design process. As with Virtus's flagship product, designers can





Visio Technical (above) is great for repetitive symbols. ANATech (top right) makes scanning easy. TriForma 95 (middle) gained accuracy. ConceptCAD (bottom) roughs out 3D before hardline drafting.

walk through the on-screen model. They can also output VRML, AVI, and 3D Studio files. The final files can be imported into CAD for hard-line drafting, via 3D DXF.

Corel also showed a 3D modeler for conceptual work. It is meant more for the mechanical design market, but has features some architects will like. Corel also sells Visual CADD, a 2D product originally developed by Numera as a successor to Generic CADD.

The 3D-animation field is beginning to get crowded as architects' use of animation tools increases. In fact, a third of the attendees at a preshow gathering of MicroStation users said they used animation in client presentations. But various products have widely different prices and features. The Virtus product, for instance, is more flexible than the new Autodesk Walkthrough, but at $1,595 it's about five times the price. Autodesk's Kinetix division sells 3D Studio Viz for under $2,000, however. It has more features than Virtus on the output side, for producing finished animations.

Kinetix also made moves to match Lightscape's design capabilities by adding RadioRay to 3D Studio Max and 3D Studio Viz. This add-on allows designers to simulate the real physical behavior of lights in 3D Studio scenes. Lightscape hasn't been standing still. It cut its price to $495 a few months back, announced an alliance with lighting vendors and Lumen Micro for direct translation of lighting data files into Lightscape, and improved calculation speed. Import and export between Lightscape and 3D Studio have also been improved.

Need to populate your productions with people, or to check human-factors engineering features such as heights of working surfaces? Check out MQPro from HumanCAD Systems. If you use such products to produce raster images for AutoCAD 14, you may want to see Expert Graphics' RxAutoImage 97 and RxHighlight 97, for fast viewing, editing, and printing.

Nemetschek announced an add-on modeler for AutoCAD 14. Due to be released as we went to press, this AutoCAD add-on will interface with AutoCAD through Autodesk's ObjectARX, and will sell at a low price. Nemetschek, best known for its AllPlan CAD software, expects to release a whole line of inexpensive AutoCAD add-ons under the ARCH 14 brand name. AllPlan also got a major upgrade, with more tools for conceptual design; AllPlan FT 12.3 was due to be released in July.

The extra costs associated with the major CAD vendors' subscription support systems may leave even more running room for the purveyors of "non-AutoCAD" design products. Diehl Graphsoft showed its MiniCAD 7 for Mac and Windows NT/95. Deneba (the Canvas people) showed DenebaCAD and Ditek showed DynaCADD for Windows NT/95—all strong products, each with a unique interface you may find congenial, that will sell for $500 to $700 on the street.

Bentley announced its takeover of IdeaGraphix, one of the largest suppliers of MicroStation add-on software. MicroStation will also be getting more accurate drawing entities, with an "extended precision" feature that will prove especially useful to the small number of designers who deal in complex, curved beams. It works by allowing you to add extra points to the end of any element, with 65,000 data points between any two extra points. The resulting file will be backwards-compatible with older versions of MicroStation.

Other software news

Harper/Shuman released the first Windows-based version of its robust Unix CFMS financial-management software. DesignBlocks, a Sweet's/Autodesk product, continues to improve. The second CD-ROM update has a better interface; it can be searched from within AutoCAD and can insert details directly into AutoCAD files. It has to be run locally, on the user's computer, but it can grab new files from network drives.

AEC Software showed its FastTrack Schedule 5.0 for Windows and Macintosh. It allows easy posting of schedules on Internet sites, with embedded hyperlinks to associated files or other Internet addresses. Primavera demonstrated its new Webster, for Web-browser access to project planning and management data. Users can add notes and hyperlinked documents to the project information they see on the screen. Insight Development announced a new version of PrintAPlot, with a batch file feature for unattended plotting. Its Squiggle 3.0, for turning hard-line CAD drawings into sketchlike output, is also a wow.

Hardware news

For the second year, Silicon Graphics ran the most powerful computer at the show, an Onyx2. In a small studio built on the show floor, SGI used the Onyx to do flight simulations animated in real time, on a wrap-around screen more than 3,200 pixels wide. SGI also showed workstations for under $10,000. Many of the software vendors exhibiting with SGI had ties in the flight-simulation field; they showed wild urban simulations that allow real-time or near-real-time flythroughs. None of the urban models, however, matched ModelCity Philadelphia, which was shown in many venues at A/E/C this year. The Philadelphia model includes a great deal of underlying GIS-based planning data, with more to come.

BAGH, known for its Macintosh-based Architrion, showed the product on a low-priced SGI O2. BAGH and also announced its Archi-Design CAD and modeling software for Windows NT/95 and Macintosh.

EnCAD showed its new NovaJet series of giant inkjet printers. One model prints 50 inches wide, the other prints 60. The company also released a line of low-cost inkjets, as did Epson. ANAtech showed its Eagle SLI scanner line with ScanSmith Preditor software for easy cleanup of scanned images. You can change the parameters of part of a scan (for cleanup of random dots, for instance, or reconnection of broken lines) without affecting the rest. ■

For more information, circle number on Reader Service Card

AEC Software/FastTrack Schedule 5.0 for Windows **195**
ANAtech/Eagle SLI Scanner **196**
*Archibus/FM I*Net Toolkit* **197**
Autodesk/2D DWF **198**
Autodesk/Kinetix 3D Studio Viz **199**
BAGH/ArchiDesign CAD **200**
Bentley/ModelServer, IdeaGraphix **201**
Cimmetry/AutoVue Professional **202**
Corel **203**
Cyco/AutoManager View 2.0 **204**
Deneba/DenebaCAD **205**
Diehl Graphsoft/MiniCAD 7 **206**
Ditek/DynaCADD–Windows **207**
Eagle Point **208**
EnCAD/NovaJet **209**
Epson **210**
Expert Graphics **211**
Framework Technologies/ Aspects SiteBuilder **212**
Graphisoft/ArchiCAD for TeamWork **213**
Harper and Shuman/Unix CFMS **214**
Hitachi **215**
HumanCAD Systems/MQPro **216**
Insight Development/PrintAPlot **217**
Kamel Software/FastLook **218**
Ketiv **219**
Kozo Scandinavia/DRA-CAD **220**
Kruse/Continuum **221**
Lightscape **222**
Nemetschek/AllPlan FT 12.3 **223**
OnSite Computing **224**
Primavera/Webster **225**
Silicon Graphics/Onyx 2 **226**
Softdesk/AutoArchitect 8.0 **227**
SoftSource/Vdraft **228**
Sweet's–Autodesk/DesignBlocks **229**
Synergis/NFM3 **230**
Virtus/ConceptCAD **231**
Visio/Visio Technical **232**

YOU'LL WIN IN THE CAD CLONE WARS

Autodesk and Bentley are watching their backs. For Autodesk, it started three years ago with a flawed release, R13. Softdesk, dependent on Autodesk for sales of its own add-ons, developed an AutoCAD clone called IntelliCADD. It uses exactly the same entity set as plain-vanilla AutoCAD DWG, so files do not need translation. It also uses AutoLISP and ADS, two of the three AutoCAD programming interfaces—ways to meld add-on software to the core CAD engine. It supports more than 90 percent of AutoCAD commands.

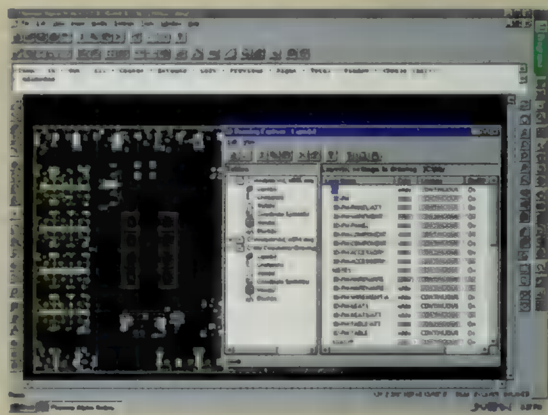
Softdesk was already testing, but stopped in June 1996. Sources [illegible] board got [illegible] feet [illegible] IntelliCADD to [illegible] by a company other than Autodesk, the FTC says. The FTC, worried about an Autodesk monopoly, forced Softdesk to divest itself of IntelliCADD anyway, before approving the merger. The head of the IntelliCADD developer team formed Boomerang Technology, which bought IntelliCADD on February 21 and sold it to Visio for almost $7 million that day.

The FTC also forbade Autodesk from interfering with attempts to hire people from the IntelliCADD team, or with attempts to market the product. In addition, Autodesk and Softdesk agreed not to try to reacquire IntelliCADD until 2007 without notifying the FTC. The decree became effective just before A/E/C Systems. Visio was showing IntelliCADD—which it is calling its "Phoenix" product—with add-ons from Ketiv, Cyco, Eagle Point, and Hitachi. Ketiv announced a version [illegible] architectural add-on, ArchT, for [illegible] add-on, for $500, com-[illegible] Visio's expected $500 [illegible] (by this fall) procure [illegible],000 buys today [illegible] Ketiv says ArchT [illegible] for Visio in a matter [illegible] ors do the [illegible] have thou-[illegible] add-ons.

There is one major difference between the Visio and AutoCAD systems. Visio uses VBA (visual basic for applications) as the interface for attaching object-oriented add-ons to the CAD engine. Autodesk has developed its own approach, ObjectARX, which add-on vendors say is easy for them to use. Although it is the Microsoft standard, VBA is not widely used in the CAD world. Visio says it can adapt to ObjectARX if necessary. Autodesk could make ObjectARX entities harder to read, but that would also cause problems for AutoCAD users, forcing them to buy add-ons to view drawings as well as create them. And it would restrict add-on vendors, who would like to sell for CAD programs other than AutoCAD.

Even worse for Autodesk, Visio has strong ties to Microsoft. But perhaps the folks at Bentley shouldn't gloat. At a press briefing after his keynote panel, Intergraph Chairman and CEO Jim Meadlock said Intergraph tries "to complement [Bentley] MicroStation with smaller, vertically focused software." Intergraph had eight new architectural and engineering software products at A/E/C, including Imagineer Technical 2.0, a 2D sketching and CAD package.

Meadlock said that long-term, "we will do MicroStation-compatible files and eventually replace the [MicroStation] core over five years." Seems a strange strategy, since Intergraph owns half of Bentley and acts as dealer for about 20 percent of its sales. Asked about that, Keith Bentley noted only that Intergraph must move from selling low-margin computer equipment to higher-margin software to survive. —*S.S.R.*



Like AutoCAD, Visio's clone picks up the Microsoft Office command structure, with extra palettes for drawing commands. The command-line window, like AutoCAD's, can be removed or moved to the bottom of the screen.

It runs fast. You save time.

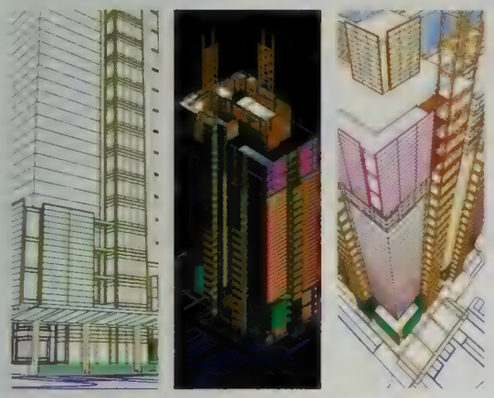
It saves steps. You try more ideas.

It simplifies data sharing. You communicate your ideas.

It advances the state of the art. You get the future.

It's been thoroughly tested. You won't be.

It's AutoCAD Release14. You ought to see it.

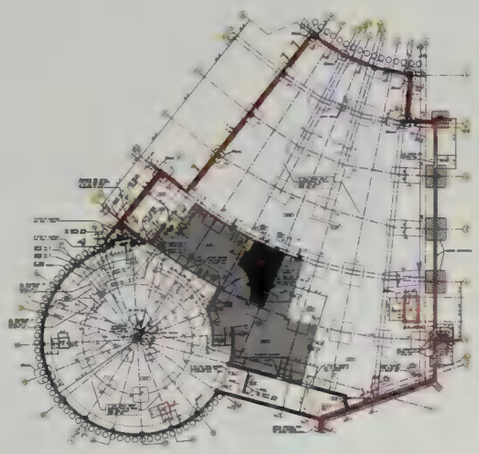


See the big picture and share it. AutoCAD Release 14 makes it easy to share your designs with your co-workers and clients around the corner or around the world.

And when you see AutoCAD® Release 14, what you'll see is a faster, smarter, better AutoCAD.

It runs fast. Faster than Release 12 DOS. Much faster than Release 13. You save time.

It saves steps. Our new AutoSnap™ tool and property editing features accelerate precision drawing. Wizards automate setup. And new toolbar shortcuts help you customize it to the way you work. You save more time (and try more ideas).



New precision drawing tools help eliminate guesswork to save you time and steps.

It simplifies data sharing. From a new easy-to-use external reference manager to raster support to built-in Web publishing, it's easier than ever to communicate your designs.

It's state-of-the-art. It's optimized for 32-bit Windows. It has smart second generation object technology and a better graphics engine. You get the design platform of the future.

And, finally, it's the most rigorously tested AutoCAD ever (16,000 beta testers can't be wrong). You get peace of mind.

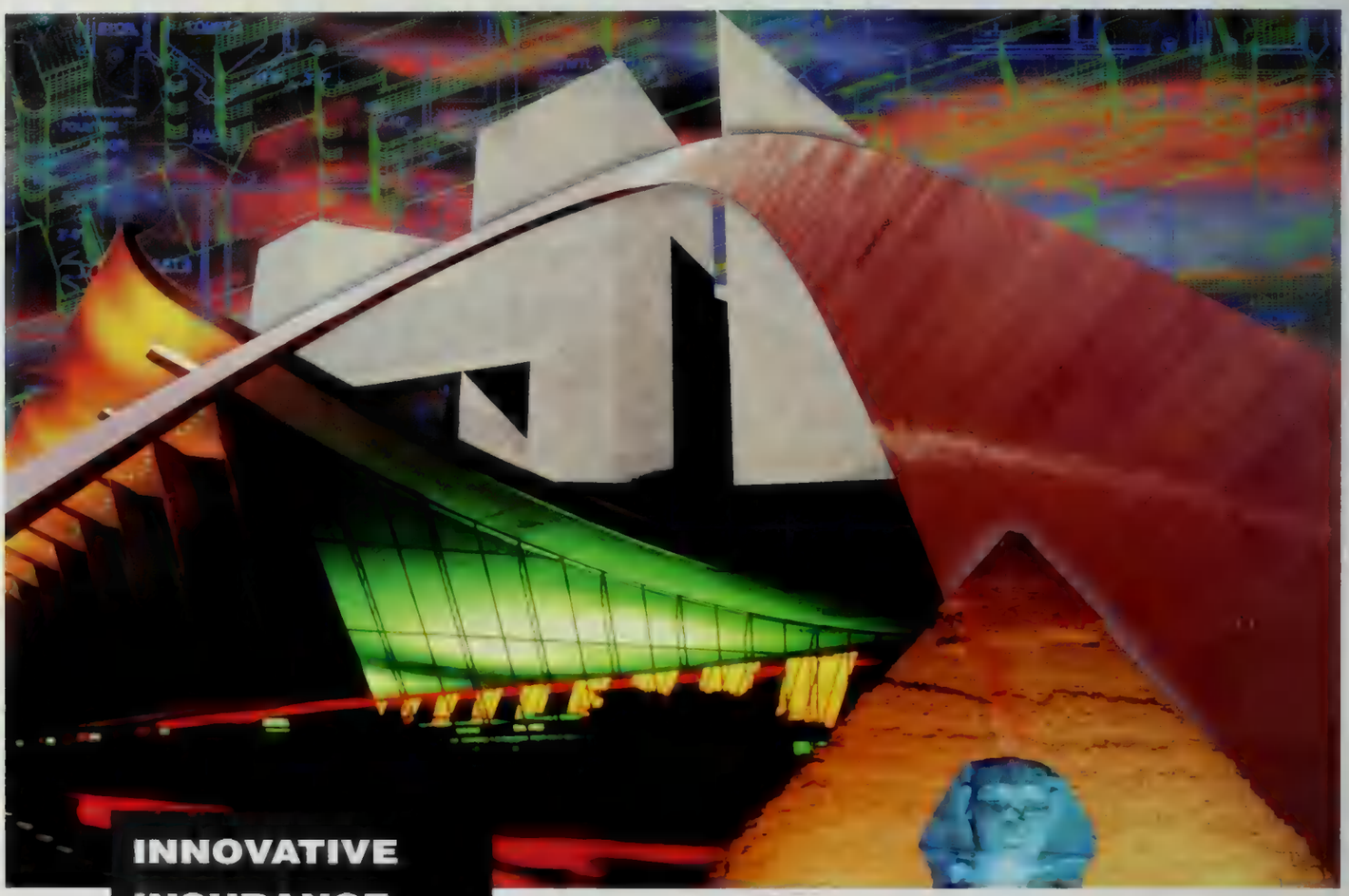
AutoCAD Release 14. It's faster, smarter, better. And it will help you be that way too. But don't take our word for it. Call 1-800-964-6432 to get free Demo CD R700. See your Autodesk Reseller. Or see us at www.autodesk.com/autocad/r700.



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CIRCLE 54 ON INQUIRY CARD

NEW PRODUCTS

INNOVATIVE MATERIALS AND PRODUCTS FROM '97 TRADE SHOWS

This month, RECORD covers some of the building-product trade shows held in the first half of 1997. This and the following pages include products introduced at the NAHB, NRCA, AIA, CSI, Coverings, and Neocon shows. The items in this alphabet soup of building materials and interior furnishings are "editors' choices," picked because they seem to represent trends in the industry. The RECORD LIGHTING section contains ■ page of new fixtures introduced at Lightfair, held in New York City in late April, and contributing editor Steven Ross reports from the A/E/C Systems show, pages 139–42. Literature appears on pages 152–53.

—Joan Blatterman, New Products Editor

Going to trade shows can be a total-immersion method of acquiring building-product expertise—or, at the very least, of understanding what the manufacturers want to tell you. Shows are also an effective way to collect continuing education units, and the demand for CEU courses has improved the quality of the seminars themselves. But shows are time consuming and relatively expensive to actually get to. So here's an armchair tour of some recent events.

1998 Shows

The Builders' Show National Association of Home Builders. Dallas, Jan. 16–19. 800/368-5242

National Roofing Contractors Association Las Vegas, Feb. 8–11. 847/299-9070

Kitchen & Bath Industry Show Chicago, April 17–19. 800/527-0207

Construction Specifications Institute Baltimore, June 25–27. 800/689-2900

American Institute of Architects San Francisco, May 14–17. 617/859-4475

Coverings (International Tile & Stone Expo) Orlando, Fla. April 22–25. 561/747-9400

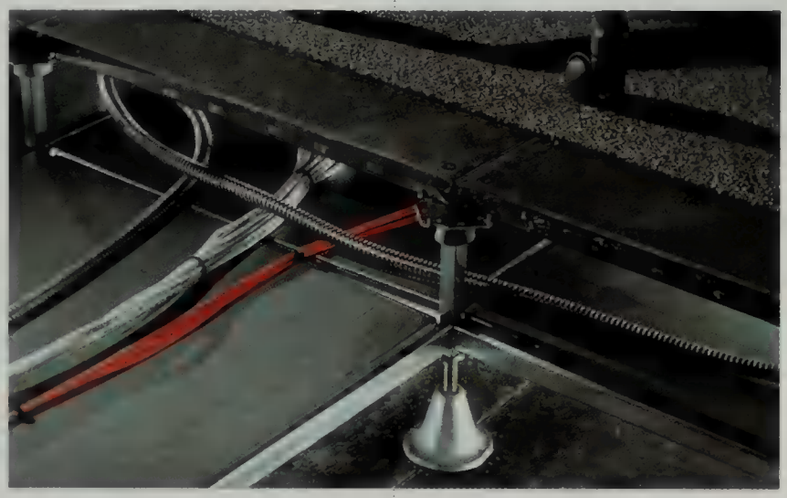
Lightfair Las Vegas, May 27–29. 404/220-2217

Sponsored by the National Association of Home Builders, the Builders' Show is the largest trade show, both in terms of attendance and exhibits. Traditionally held in the same city for three consecutive years (it was Houston in 1995–97), next year the NAHB show starts a three-year run in Dallas. Attendees run the gamut, from small building contractors, foremen, and prospective homeowners to the Del Webbs of the home-building industry. The show—and the trends and futuristic products it showcases—attracts a lot of media attention. This year builders seemed interested in learning more about New Urbanism, though there is resistance to implementing land-use strategies, like back-loading alleyways, that cost real money. Product trend: still more stainless steel, with even clothes washers sheathed in shiny metal.

The National Roofing Contractors Association has sponsored annual conventions for more than 100 years. Who attends: roofing contractors, consultants, and architects interested in the performance of roof materials. Most spending is in reroofing, generating subspecialties such as sprayed-in-place polyurethane systems. Entrepreneurial types, the roofers prefer speakers drawn from a conservative pantheon. This year, hot products included metal roof shingles and AutoCAD-based roof-design software.

A "new" show—Coverings, formerly the International Tile & Stone Expo—features loads of tile and stone in exciting exhibits. With a large international contingent from Spain, Italy, and Asia, this show's recent move to Orlando from Miami wasn't completely popular.

Chicago's Neocon was a lively event this year, with "distribution" the hot topic. Contract manufacturers showed desks, partition walls, ceilings, and floors (see right) getting electrified. In the news: Hon bought Allsteel, and the Merchandise Mart purchased the rights to Los Angeles' Westweek show. Tradeshow giant Miller-Freeman made a preemptive acquisition of New York's Interplan show (the descendant of Designer Saturday), combining it with a North American version of Paris-based Batimat, another Miller-Freeman property, creating a new conglomerate event to be held in New York's Javits Center this fall.



Multiple-level raised floor Interface Architectural Resources (AR), a subsidiary of carpet manufacturer Interface, Inc. that markets the C-Tec brand of raised flooring, describes itself as a specialist in solutions that anticipate future office requirements.

At the Buildings Show component of Neocon this June, the company displayed an interstitial raised-floor system that accommodates both wiring and HVAC distribution. The design creates two or three separate layers beneath the raised-floor panels, supported by the same pedestal, which combine the functions of sheet-metal overceiling air ducts with those of underfloor wire and cable raceways. Widely used in Europe, underfloor air distribution is considered the most efficient way to circulate conditioned air. A segregated air-distribution plane creates an unobstructed pressurized supply-air plenum without requiring expensive wire jackets; flexible "airflow chimneys" bring cooled (or warmed) air up to in-floor baffles exactly where it is needed for occupant comfort. The power and data cables are run in the UL-listed space directly under the flooring panels, making them accessible without disturbing the HVAC plenum. Mechanics can level the pedestals from the walking surface, again without contaminating the air plenum. By consolidating air-distribution and wiring functions, the interstitial system actually reduces slab-to-slab height requirements. 800/691-8600. InterfaceAR, Kennesaw, Ga. CIRCLE 235



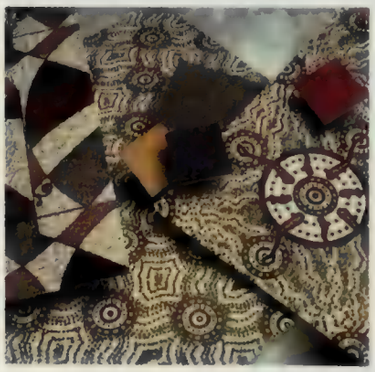
Interstitial system has separate distribution planes. Installation shows the scale of the flooring panels.

PRODUCTBRIEFS



▲ Rustic-look tile floor

Made by the Spanish firm Zirconio to meet commercial specs, Dover tile has a semimatte, "layered" surface that resembles rusticated stone. Tile comes in limestone-like colors (gris is shown) in 12- and 16-in. squares. 800/789-TILE. Florida Tile, Lakeland, Fla. **CIRCLE 236**



▲ Pattern-intense modular

A new PVC-free carpet, Movements is said to be the first cut-pile, bonded modular with an integral cushion backing. Suitable for even the heavy rolling traffic of airports, the line uses bold patterns for a seamless effect. 706/880-5511. Milliken, LaGrange, Ga. **CIRCLE 237**

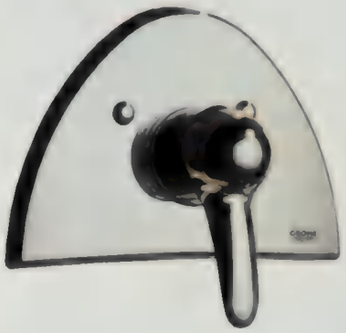
▼ "Low-e" house paint

A new latex-type paint developed by Sonneborn, Radiance evolved from a German "stealth" coating technology that masks the infrared signature of military vehicles. Applied to ceilings and walls, the paint keeps interiors cooler in summer by blocking solar heat. In winter, homes stay warmer as radiant energy is reflected back into the space. Offered in 73 colors. 800/433-9517. ChemRex, Inc., Shakopee, Minn. **CIRCLE 238**

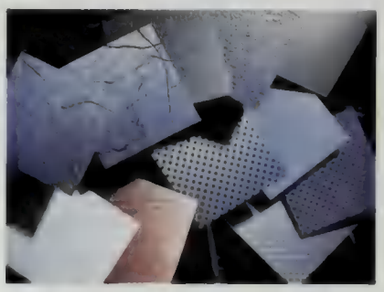


▼ Euro-design shower valve

A distinctive arched style, Talia bath fittings include a lever-handle shower control with thermostatic temperature or pressure-balancing valve options. Grohe America, Inc., Bloomingdale, Ill. **CIRCLE 239**





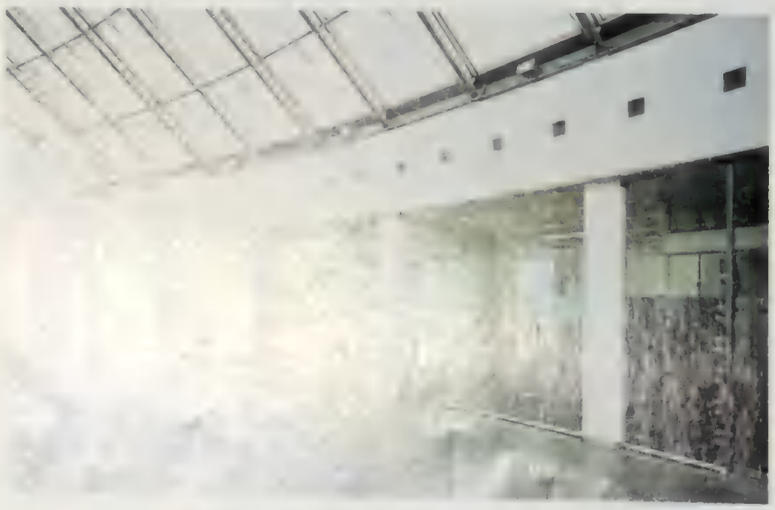


▲ Industrial-tech laminate

A collection of metal surfaces bonded to a phenolic backing, DecoMetal provides an industrial aesthetic for fixtures, furniture, and other interior uses. There are 32 laminate and nine solid-metal options, including gold leaf, matte steel, and polished aluminum. Architect's guide offered. 800/FORMICA. Formica Corp., Cincinnati. **CIRCLE 240**

▲ Space-saving mobile storage

The museum-storage installation shown above illustrates the range of specialty Equiptovation shelving options available (medical storage is a specialty). Offered in site-specific depths, widths, heights, and access, mobile aisles can hold solid-metal and wire-rack shelving. Carriages sit on a floor system that can be leveled on uneven surfaces. 800/323-0801. Equipto, Dallas. **CIRCLE 242**



◄ Glass-panel space divider

Widely installed in malls and other commercial interiors in Europe, the Cascadia space divider is made of laminated-glass sections that glide down from an overdoor housing to create a secure yet transparent wall. No floor-level storage space is needed. The chain-drive motor is operated by push button; a safety device halts the descent if an obstacle is sensed. Walls are 11 ft wide by 10 ft tall; sections can be linked by a movable center post to create corners and longer spans. 800/869-9685. Modernfold, Inc., New Castle, Ind. **CIRCLE 241**



▲ Cooperative-effort fire door

An "industry first" 90-minute double-egress wood fire door was developed by a team consisting of Zero International (intumescent seals), Georgia-Pacific (fire-rated mineral core), Adams Rite (top-rod-only concealed vertical rod exit), and VT Industries (no-metal-edge wood-veneered doors). 201/467-7878. **CIRCLE 243**

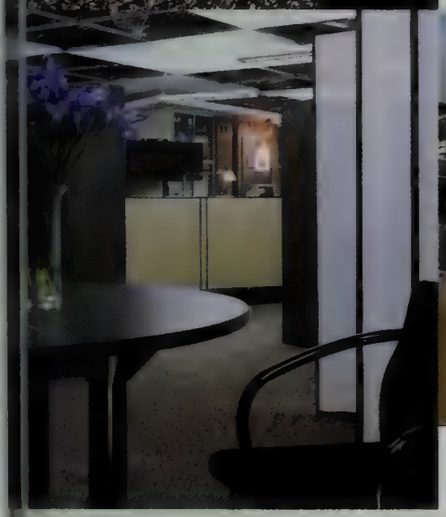


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Only a few contract interiors can capture the industry's hottest design award. This is one of them. Monsanto is honored to present its 1996 Doc Award to Steven Clem and the team at TVS Interiors, Atlanta, for Prince Street's

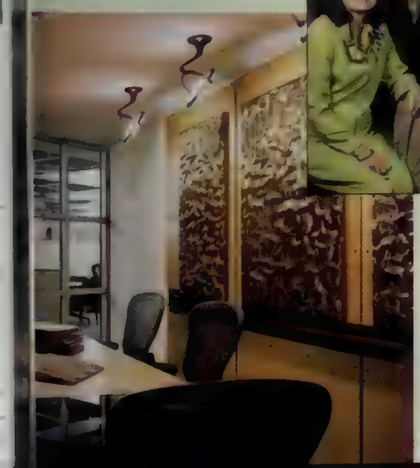
The Doc Award celebrates world-class design that's ever-changing





corporate offices, showroom and mill in nearby Cartersville. They integrated flexible workspaces, information nodes and seven styles of Prince Street carpet with Monsanto Ultron® VIP nylon to create a constantly changing showcase for the mill's new product introductions. Select carpet with Ultron® VIP nylon for your next project and customize an award-winning vision of your own.





(installation); © Don Rank Photography (product).

THE RIGHT CARPET MAKES IT HAPPEN.

Winning design team (left to right): Stephanie Belcher, Steven Clem, Rena Howard and Nancy Cartledge.

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CIRCLE 55 ON INQUIRY CARD

PRODUCT BRIEFS

► 90-degree corner window

With no mullion, an all-glass corner unit is one of the custom-window designs available in a choice of wood frame: oak, cherry, maple, or mahogany interiors in place of the standard pine. This permits kitchen windows to match cabinetry, if desired. 800/477-6808. Weather Shield Mfg. Inc., Medford, Wis. **CIRCLE 244**



▲ Insulation for steel studs

Foamular extruded-polystyrene insulation can be placed between brick-veneer walls and steel framing; anchors penetrate the board to tie masonry to steel. A vapor barrier reduces steel corrosion and moisture damage. 800/828-7155. Owens Corning, Toledo, Ohio. **CIRCLE 245**

▼ Danish Modern revival

The Chieftain armchair, designed by Danish architect Finn Juhl in 1949, has become a classic of Danish Modern style. Unique elements include a floating seat that rests on crossbars; frame is turned walnut. Baker Furniture, which originally made many Juhl designs, is reissuing the chair and three other pieces. [illegible] Co., Holland, Mich. **CIRCLE 246**





▼ Large-project Corian

Using direct delivery and standardized construction steps to reduce the installed price for a Corian bath, a new firm specializes in fabricating and supplying bath vanities, counters, and shower surrounds for large, multiple-room hotel and hospitality remodels and new construction. 888/BUY-CORIAN. Vanity & Wet Wall Direct, Austin, Tex. **CIRCLE 247**





▲ Custom table tops

A new visual for food service: custom tops. Photos, logos—any design—can be created in laminate from a designer's sketch. 800/449-8677. Home on the Range, Durham, N.C. **CIRCLE 249**

► New look for curved ceilings

Several additional infill-panel options are available in the Curvatura "3D" grid-suspended ceiling. Flexible Diamondflex mesh has an unusual pattern of light-[illegible] perforated and twisted [illegible] translucent FRP panels (pictured) become light fixtures when backlit. [illegible] edge trim permit any given [illegible] a finished perimeter [illegible]. Free templates and software [illegible] architects and designers create custom [illegible] that arrive at the job site [illegible]-ready. 800/USG-4YOU. USG Interiors, Inc., Chicago. **CIRCLE 248**



▼ Stone-look ceramics

A new floor and wall line, Cobblestones come in five colors, three sizes of field tile, and sculptured trim and high-relief frieze pieces. The installation shown here uses two sizes of wall tile set with a molded trim that can also be a chair rail or countertop edge. Summitville Tiles, Summitville, Ohio. **CIRCLE 250**



▼ Stern upholstery

Robert A. M. Stern's textile collection translates remembered elements of locales from an architect's grand tour of Europe into evocative motifs in upholstery fabric, such as this jacquard with a Wiener Werkstätte feel. Hickory Business Furniture, Hickory, N.C. **CIRCLE 251**



W VERSION!

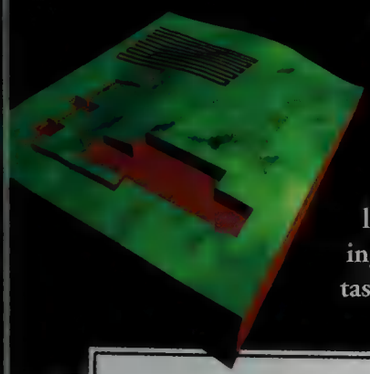
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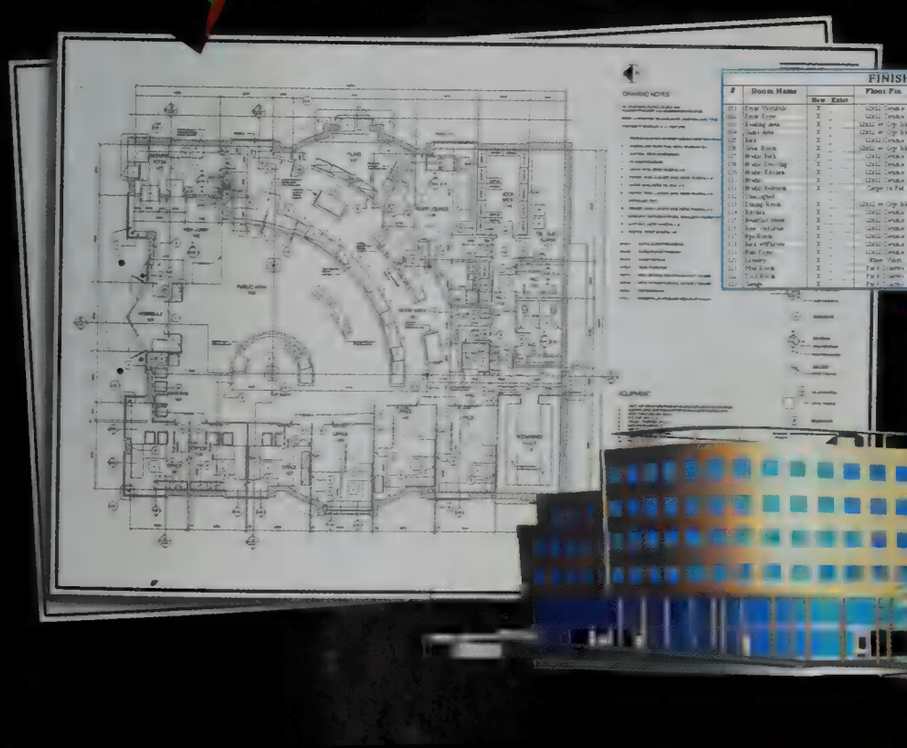
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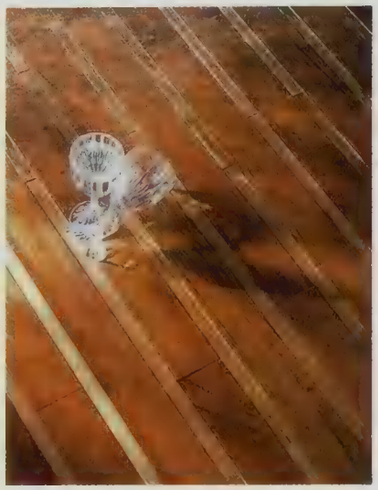




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CIRCLE 56 ON INQUIRY CARD

PRODUCTBRIEFS



▲ Maritime-flavor floor

Kentucky's new Aquatica wood floor pattern achieves a ship-deck effect by alternating 3/8-in.-thick by 3-in.-wide strips of Brazilian cherry wood with narrower strips of red oak. A rugged construction shipped prefinished, the floor is suitable for either direct-nail installation or gluing with a Type II mastic. Sample program available to designers. 502/451-6024. Kentucky Wood Floors, Inc., Louisville, Ky. **CIRCLE 252**

▼ Mildew-resistant wall finish

Originally developed as a durable exterior finish, Dryvit's textured PMR (Proven Mildew Resistant) coating is increasingly used as an interior wall treatment. Particularly suitable for abuse-prone, high-humidity environments such as hotel corridors, PMR finish can replace vinyl wallcoverings with an attractive coating that lets walls "breathe." The product also is said to inhibit soiling from airborne dirt. A sample program provides swatches of all PMR textures. 800/556-7752. Dryvit Systems, Inc., West Warwick, R.I. **CIRCLE 253**





◄ Retrofit cabling system

Intended for open-plan work environments, Cablefloor adds a flexible power, voice, data, and video cabling capacity that needs only 2 1/2 in. of overall height. Access-floor panels are made of a fire-rated cement/wood fiber composite; support cylinders are V-2 fire-rated polypropylene. Individual floor panels are held firmly by screw-down nylon corner clamps. 800/999-3567. Flexspace, Inc., Seattle, Wash. **CIRCLE 255**

► Built-in side-by-side

A 42-in.-wide model is now available from Sub-Zero, making built-in refrigeration more appropriate in kitchens where floor space is at a premium. Units may be faced with almost any paneling (not more than 1/4 in. thick); both colored- and stainless-steel panels may be specified. A new architectural design guide provides templates and dimensional information on all Sub-Zero refrigerator/freezer equipment. 608/271-2233. Sub-Zero Freezer Co., Inc., Madison, Wis. **CIRCLE 254**





CIRCLE 57 ON INQUIRY CARD

PRODUCTBRIEFS

▼ Out of prison

A maker known for ultra-rugged institutional plumbing introduces Meridian, a line of stainless-steel toilets and washbasins for less-abused public washrooms. 818/336-4561. Acorn Engineering, City of Industry, Calif. **CIRCLE 256**



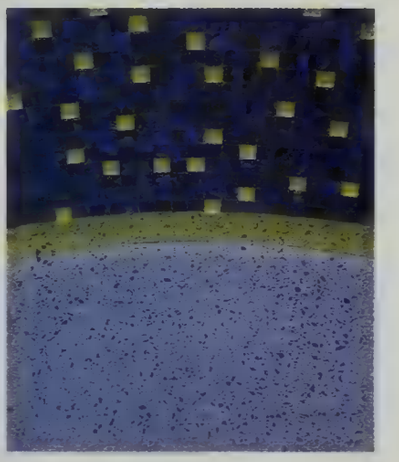
► Cushioned roof sheet

A single-ply sheet developed for reroof applications, FleeceBack consists of a nonwoven backing laminated to a .045-in.-thick Sure-Seal (black) or Brite-Ply (white) weatherproofing membrane. The fleece provides a puncture-resistant, cushioning element useful over existing roofing surfaces where foot traffic is anticipated. Carlisle also offers a Windows-compatible CD-ROM with all current product information, as well as design details in AutoCAD format. To view, access carlisle-syntec.com (Web page). 800/4-SYNTEC. Carlisle SynTec, Inc., Carlisle, Pa. **CIRCLE 257**



▼ Glass "terrazzo"

A new material from Bisazza, an Italian firm famous for glass mosaics, Logos is made by mixing glass granules of different colors in an organic resin. Cast into tiles of various sizes and thicknesses, Logos is suitable for high-traffic floors, interior or exterior walls, and countertops. As the colored aggregate is glass, it will not stain. Technical data, performance-test results, and an architectural sample program are offered. 305/597-4099. Renato Bisazza, Inc., Miami. **CIRCLE 259** ■





◄ Tile and stone care

TileLab is a new system of 11 cleaners, sealants, and restoration products. The line includes new Surface Gard, a polymeric sealant for unglazed tile, natural stone, concrete, and grout, which is applied simultaneously over tile and grout to create an invisible stain barrier. 800/272-8786. Custom Building Products, Seal Beach, Calif. **CIRCLE 258**

A CROWNING ACHIEVEMENT IN FIXTURE DESIGN

Each new member of Lumière's Coronado line of metal halide fixtures is a unique specification grade fixture designed to use the newest in high technology natural color rendering metal halide lamps.

Unique, timeless, and patented design (U.S. Des. 373,437), and patent pending fixture aiming mechanism set these fixtures at the summit, above all others in their class. The ADEX Award winner for landscape lighting, the Coronado series adds to the roster of Lumière fixtures honored for design excellence.

Available in versions to accept the PAR 20, 35 watt (Cat. #720), PAR 30, 35 or 70 watt (Cat. #730, pictured), and PAR 38, 70 or 100 watt (Cat. #740) metal halide lamps. Coronado fixtures can be mounted in the ground, on trees or walls, and can be remoted from their waterpoof composite ballast compartment.

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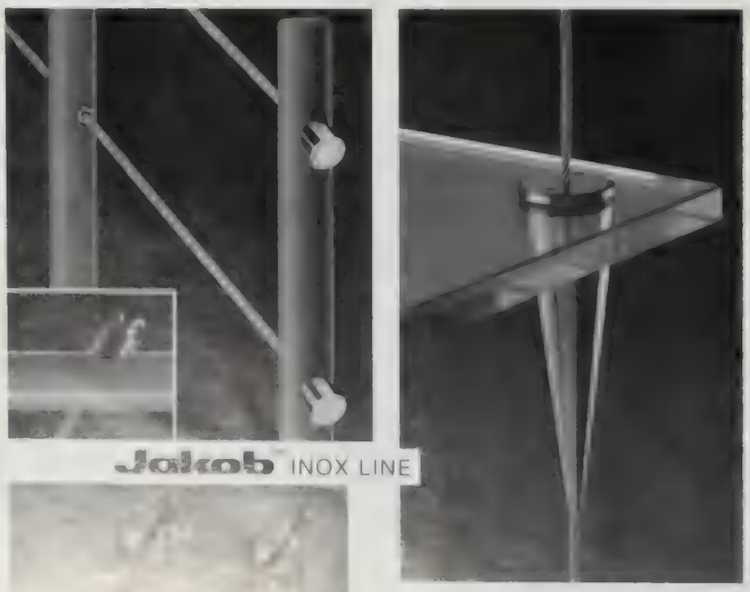
The new CD-ROM from APA has 5 engineered wood modules designed specifically for AIA Architects. It includes audio, animation and video. Learn about the latest technology on panel and glulam basics, grades and specifications, and high wind and seismic design. For more information, call APA at (206) 565-6600.

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THE RIGHT PRODUCTS FOR THE ENVIRONMENT

CIRCLE 58 ON INQUIRY CARD



CIRCLE 59 ON INQUIRY CARD

PRODUCTLITERATURE

Water-jet fabrication service

Specializing in design and cutting technology, this Iowa firm has acquired an expertise in custom fabrication of ceramic tile, natural stone, and solid metal into wall and floor mosaics, signage, and countertops and edge treatment. An architectural brochure describes the extensive water-jet capacity: 15 machines working in three shifts are available, computer-guided to create almost any desired pattern in these solid materials. Also available is the Medallion Portfolio, a collection of less costly standardized floor motifs that can be specified in almost any colorway, in stone, tile, or resilient sheet. 800/394-8145. Creative Edge Corp., Fairfield, Iowa. **CIRCLE 260**

Task-specific matting

A 20-page color catalog illustrates all of this maker's commercial, institutional, and industrial matting. Among the floor products offered are antifatigue mats, walk-off runners for entrances, and resilient mats for exercise areas. 330/773-7651. Musson Rubber Co., Akron, Ohio. **CIRCLE 261**

Historic-preservation guidelines

Prepared by the Heritage Preservation Services Division of the National Park Service, the newest "Briefs" explains and illustrates ways to control rising damp, graffiti on sensitive materials, and the restoration of historic floorings. Each 16-page publication is illustrated by photographs and contains a bibliography of additional information sources. There is a small charge for each publication; a quantity discount is offered. National Park Service, Washington, D.C. **CIRCLE 262**

Fire-protection board

Data sheets describe the newest Cafco passive fire-protection materials, including Cafco-Board. Made of rigid mineral wool, the asbestos-free board can provide fire resistance in areas where traditional spray-applied materials cannot be used. Tested for a fire performance of up to four hours, it is suitable for columns, beams, and floor/ceiling assemblies. 201/347-1200. Isolatek International, Stanhope, N.J. **CIRCLE 263**

Preventing roof blow-offs

An architectural catalog describes different Springlok reglets, termination bars, and flashings designed for specific wall and roof substrates, and anticipated loading at the site. Flashings and other roof-perimeter treatments have been wind-tested to 110 mph. 800/237-9773. Fry Reglet Corp., Alhambra, Calif. **CIRCLE 264**

Hatches and vents

A 16-page catalog covers all Milcor heat and smoke vents, roof hatches, and sidewalk and floor doors. Using a page for each configuration offered, information includes installation-detail drawings, a list of all standard-size options, and guide specifications for each application. 800/528-1411. Milcor LP, Lima, Ohio. **CIRCLE 265**



For more information, circle item numbers on Reader Service Card

PRODUCTLITERATURE



Metal shingles

Joseph Zappone's roof design replicates the longevity of European metal-shingle roofs in an American-manufactured product. Made in either solid copper or aluminum, the shingles have a "shadow-cup" profile that puts most of the metal evenly on the roof deck, permitting foot traffic without denting the material. Individual units interlock, enhancing wind- and rain-resistance. A data package also describes a new copper bay-window roof kit, with shingles, trim, counter flashings, and nails for 6- and 8-ft-wide bays. 800/285-2677. Zappone Mfg., Spokane, Wash. **CIRCLE 266**

Lighting for healthcare spaces

The Thomas Healthcare Lighting Design Binder is arranged in a logical sequence of areas through a hospital, clinic, or long-term care facility. Each fixture included in the binder addresses a specific need, such as clean-room fluorescents, downlighting appropriate for birthing suites, and secure parking-garage lights. The binder covers lighting made by all Thomas brand lines: Capri, Day-Brite, Emco, Gardco, McPhilben, Matrix Controls, Omega, and Thomas. 601/842-7212. Thomas Lighting Group, Louisville, Ky. **CIRCLE 267**

Interlocking zinc roofing

A six-page brochure explains the advantages of Rauten roof and wall "tiles" (shingles), which come in square and pointed shapes installed so that the diagonals lie in the direction of the fall. An interlocking cleat element minimizes the amount of nailing or soldering required to create a weatherproof, wind-resistant zinc cladding. 604/291-8171. Rheinzink Canada, Ltd., Burnaby, B.C. **CIRCLE 268**

Wire distribution

A color brochure describes Plugmold Plus multioutlet wire- and cable-distribution equipment, including duplex receptacles and field-replaceable surge-suppression devices. Available in either metal or nonmetallic configurations, the series comes in 15- and 20-amp versions. 860/621-0049. The Wiremold Company, Bristol, Conn. **CIRCLE 269**

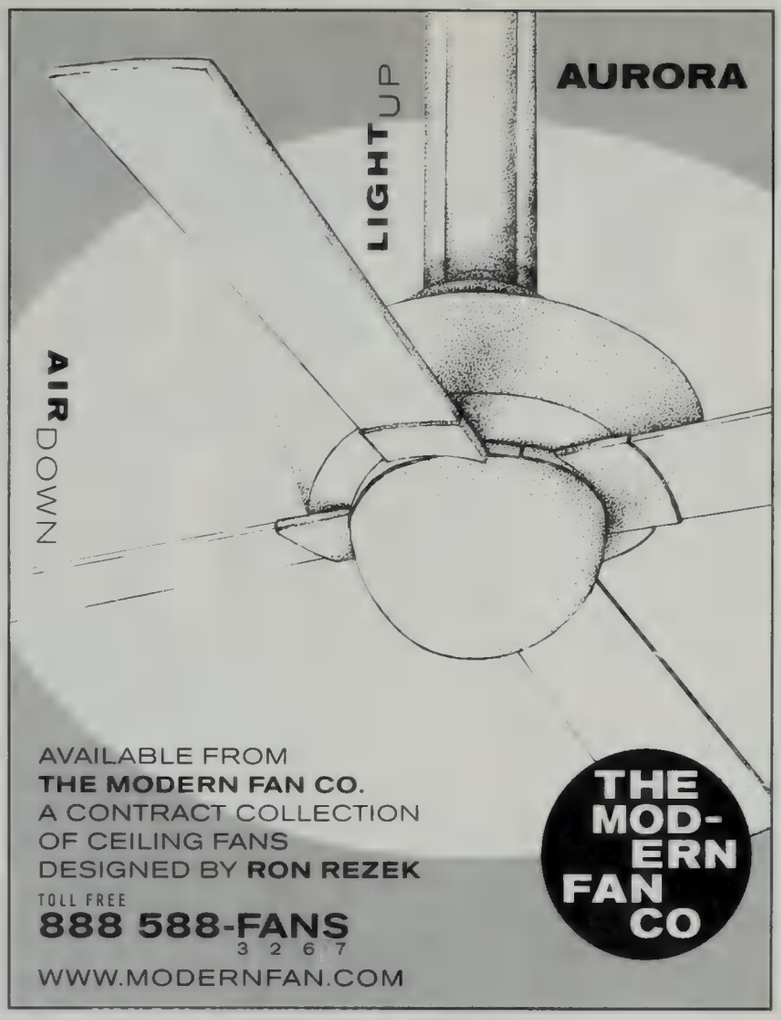
High-wind, seismic straps

Detailed drawings and cut sheets illustrate a number of new Kant-Sag connections for wood construction. Included are plates, twisted straps, and sill connectors that resist loads in three directions, as required by high-wind and seismic codes. Each page demonstrates the proper nailing and positioning sequence for the connectors. 800/328-5934. USP, Montgomery, Minn. **CIRCLE 270**

Fire-rated glazing guide

An expanded version of this sources' popular glass-comparison tool, the 1997 SpeciFIRE slide chart matches product characteristics with required size and fire-rating information. A new feature: a checklist with questions the specifier should ask before approving fire-rated glazing. The guide is free to qualified design professionals. 800/426-0276. Technical Glass Products, Kirkland, Wash. **CIRCLE 271** ■

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CIRCLE 60 ON INQUIRY CARD

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***Arclites®**: the only complete line of downlights, accent lights and wallwashers for the newest metal halide PAR lamps. Your lighting solution for all interior spaces, using the most efficient sources available. 4", 5", 6" and 7" apertures. 39, 70, 100 and 150 watts. With the same excellent optical control and performance as our incandescents. Arclites: civilized HID for use anywhere. For more information and the name of your local representative, call 212-521-6900; fax 212-888-7981.*



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Submissions must also include plan(s), photographs (transparencies, slides, or prints), and a brief project description bound firmly in an 8 1/2-by-11-in. folder, and must be postmarked no later than October 31, 1997. Winning entries will be featured in the 1998 RECORD HOUSES. Other submissions will either be returned or scheduled for a future issue. If you would like your entry returned, please include a self-addressed envelope with appropriate postage.

Entries should be mailed to:

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(continued from page 41)

sessions, code development hearings, and educational and professional development events. Expo '97 will be held September 28–30. To register, contact BOCAI, 4051 W. Flossmoor Road, Country Club Hills, Ill. 60478. For information, call 708/799-2300, x248; fax 708/799-4981; or E-mail order@bocai.org.

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Sweeney Convention Center
Santa Fe, New Mexico
The 51st National Preservation Conference, sponsored by the National Trust for Historic Preservation, addresses the theme of "People and Places: Living in Cultural Landscapes." For information, write the National Trust, 1785 Massachusetts Avenue N.W., Washington, D.C., 20036; call 800/944-6847; or E-mail santafe_npc@nthp.org.

October 17–18
Seattle, Washington
The Interfaith Forum on Religion, Art, and Architecture PIA is sponsoring "Light and Sound for Sacred Spaces," an exploration of innovative approaches to acoustics and lighting in religious buildings. Call Jean Barber at the AIA at 202/626-7305.

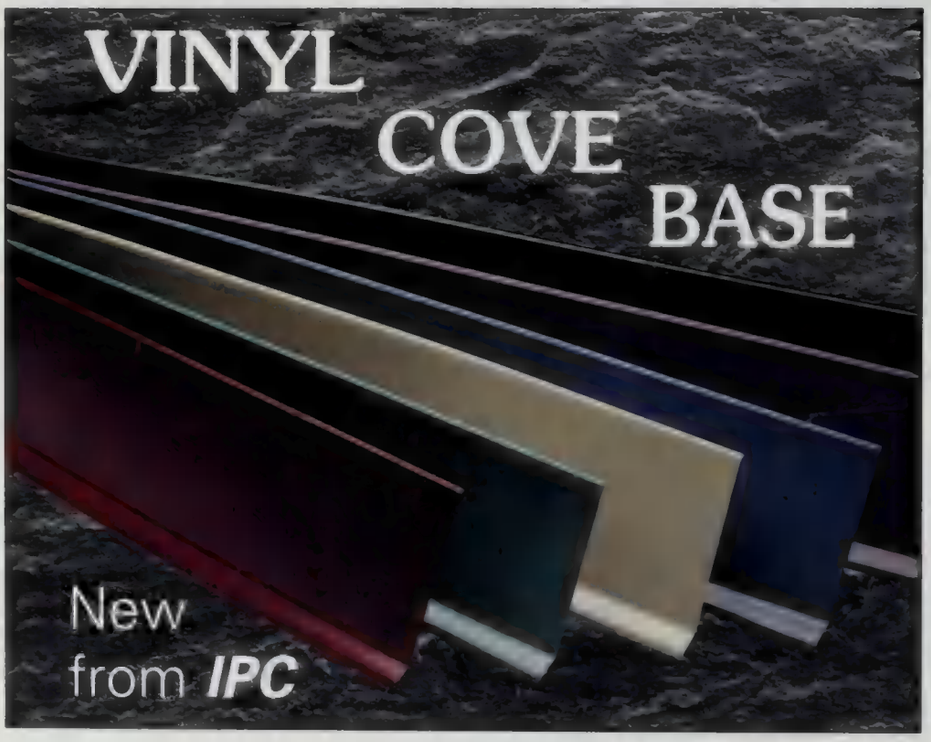
October 23–25
Outrigger Prince Kuhio
Honolulu, Oahu
The annual convention of the Society of American Registered Architects will include a design awards banquet, seminars, and business sessions. To register, contact Michael Jones, SARA, at 619/299-8891.

October 23–28
Memphis, Tennessee
"Architecture in Perspective," The 12th annual convention of the American Society of Architectural Perspectivists, features seminars and workshops, as well as a portfolio exchange, an auction, and tours of Memphis architecture. To register (by September 23), write Alexander Lee, ASAP, 52 Broad Street, Boston, Mass. 02109; or call 617/951-1433, x225.

October 28–30
Georgia World Congress Center
Atlanta, Georgia
MetalCon International '97, the annual conference and exhibition focusing on the use of metal in design and construction, will include industry meetings and more than 500 exhibits of products, services, equipment, and technology. For information, call 800/537-7765.

October 29–November 2
Mexico City, Mexico
The next meeting of the AIA's Committee on Design will be held in Mexico City. Contact David Roccosalva at the AIA at 202/626-7418.

October 30
National Press Club
Washington, D.C.
The annual National Summit on Building Performance is designed to raise awareness of building performance and workplace issues and research. Briefings, keynote speeches, and panel discussions, as well as a senior executive work-



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shop led by Tom Peters, will be presented. For information, write the National Summit on Building Performance, 655 15th Street, N.W., Washington, D.C. 20005; or call 202/639-4160.

October 30–November 2
Austin, Texas
"Linking Practice with Place: How To Do Your Best Where You Are" is the theme of the 1997 Green Building Conference. A trade show exhibition and a competition for a low-income, energy-efficient, green home will also be held. Write the Green Building Conference, P.O. Box 90008, Austin, Tex. 78709; or call 512/264-0004.

November 6–9
Omni Netherland Hotel
Cincinnati, Ohio
The AIA's Historic Resources Committee is sponsoring a conference on historic county courthouses. Contact David Roccosalva at the AIA at 202/626-7418.

November 6–9
Miami, Florida
The environmental issues facing our nation will be the focus of "Environmental and Economic Balance: The 21st Century Outlook," a conference sponsored by the AIA, the U.S. Green Building Council, and the U.S. Department of Energy. For registration information, call the AIA at 202/626-7482.

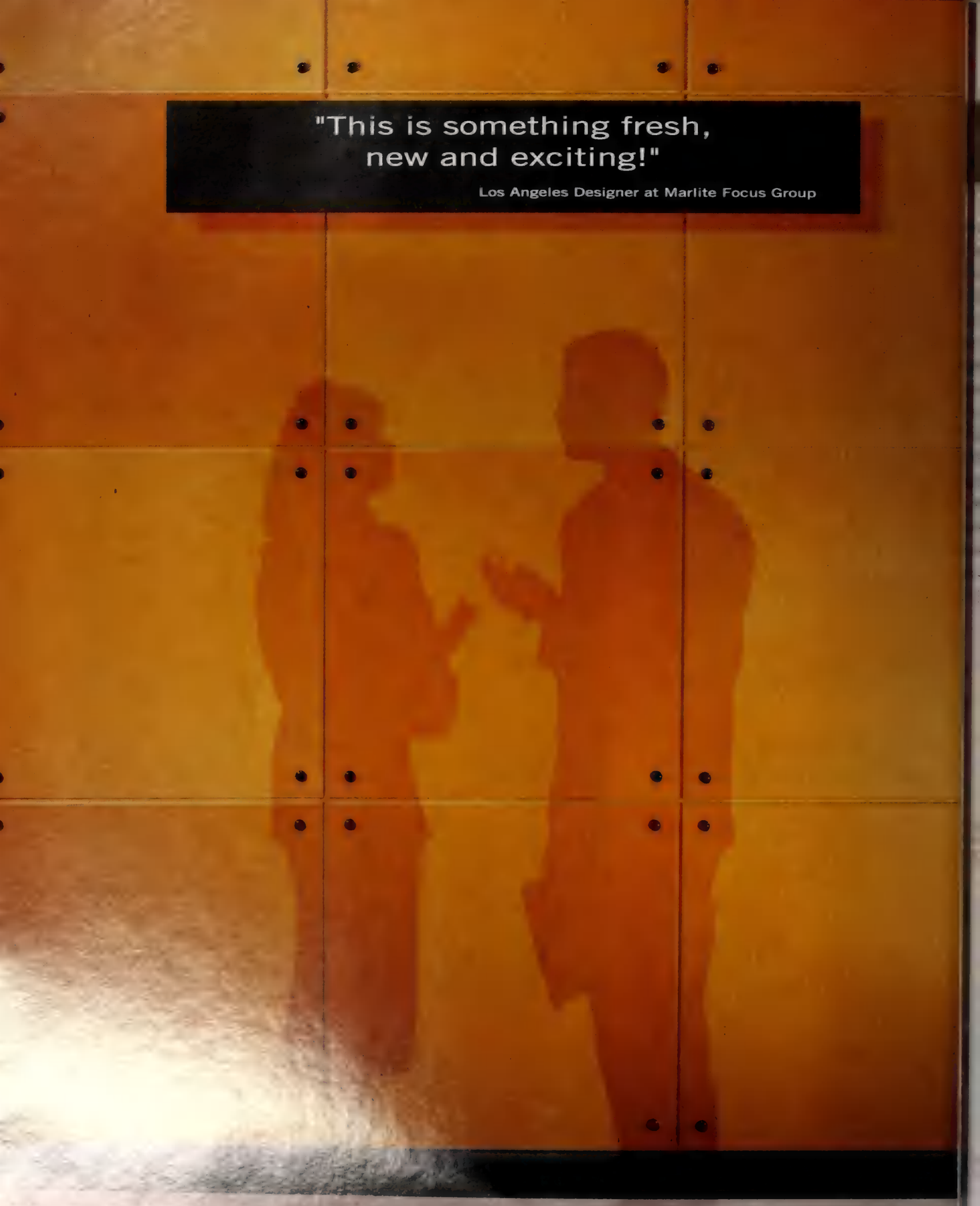
Competitions

Upcoming deadlines for the **1998 AIA Honors and Awards** program are as follows: Twenty-five Year Award, submissions due September 5; Honor Awards for Interiors, entry deadline August 22, submissions due September 19; Honor Awards for Urban Design, entry deadline September 12, submissions due October 10; Fellowship, submissions due October 24; Edward C. Kemper Award and Whitney M. Young Jr., Citation (nomination by national board member required), submissions due October 27; Honorary Fellowships, submissions due November 7; Young Architects Citation (nomination by AIA component required), submissions due November 21; Architecture Firm Award, Henry Bacon Medal for Memorial Architecture, Institute Honors, and Thomas Jefferson Awards for Public Architecture and ACSA/AIA Topaz Medallion for Excellence in Architectural Education, submissions due December 12; Honorary Memberships (nomination by national AIA board member required), due December 19; and AIA/NCMA Design Awards of Excellence, entries due January 16, 1998, submissions due February 20, 1998. For more information, call Robin Lee at the AIA at 202/626-7390.

Concept House '98 is an international competition for the design of a live/work prototype suitable for mass production with a unit cost of 100,000 pounds sterling (roughly $150,000). The design should accommodate up to five people, have a home office, employ new technologies, and be energy efficient and suitable for construction on a greenfield or brownfield site. September is the submission deadline. The winning design will be built and exhibited at the 1998 Daily Mail Ideal Home Exhibition in London. For information, call Lynne Glazzard, RIBA Competition Office, 44/113-234-1335.

The Boston Society of Architects invites entries in **Unbuilt Architecture**, an annual program open to practitioners, educators, and students. Submit entries by August 21 to Unbuilt Architecture, BSA, 52 Broad Street, Boston, Mass. 02109. For information, call 617/951-1433, x232. *(continued on page 159)*

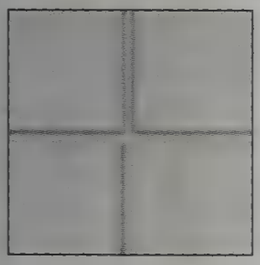




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(continued from page 157)

The annual **Shinkenchiku Residential Design Competition**, sponsored by *The Japan Architect*, will be judged this year by Swiss architect Jacques Herzog of Herzog & de Meuron. The theme is "House of Collaboration." Entrants are asked to work in collaboration with an artist or art student to draw an exhibition space for contemporary art for any site. Use two sheets of paper; no electronic media. Write Shinkenchiku, 31-2, Yushima 2-chome, Bunkyo-ku, Tokyo 113. Entries must be received by September 10.

The Urban Studies and Architecture Institute has launched an international ideas competition for ferry terminal buildings in Manhattan, Brooklyn, and Queens, connecting with La Guardia Airport. The **Fluid City/Point by Point: Ferry Stations, New York** may be entered by practitioners who completed their terminal degree within the last ten years, as well as architecture, urban design, landscape, and interior design students. Registration deadline is September 15; entries are due January 15, 1998. Write USAI, 10 West 15th Street, Suite 1126, New York, N.Y. 10011; call 212/727-2157; or E-mail Ldusainst@gnn.com.

Meei Jaw Publishing Co. announces the second annual **Taipei International Architectural Design Competition**, based this year on the theme of "absence of tradition." The competition is open to all design professionals and students and will be juried by Herman Hertzberger and C. Y. Lee. The deadline is October 1 for registration and October 15 for submission of entries. Write Meei Jaw Publishing, 12f, no. 413, Hsin-Yi Road Sec. 4, Taipei, Taiwan, Republic of China; or call 886/2-729-9900.

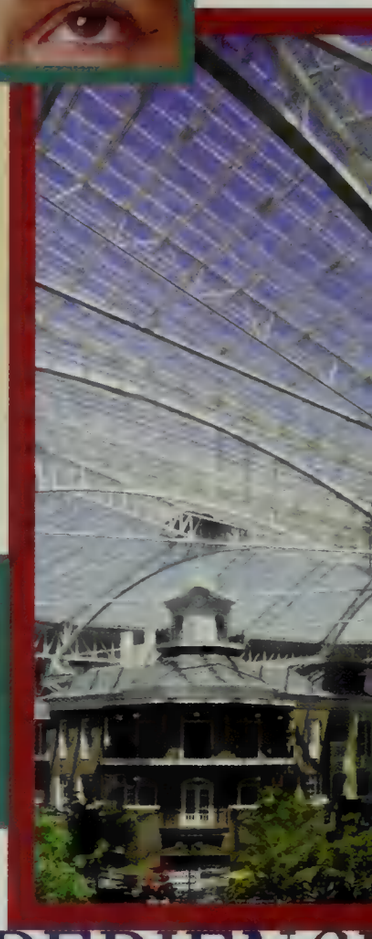
The Environmental Design Research Association and the journal Places announce an awards program for **environmental design research and practice**. Two categories of awards will be included: "design research" awards for projects that investigate the relationship between physical form and human behavior; and "place design awards" for completed projects that demonstrate excellence as human environments. Open to designers and researchers in a range of fields, from architecture and planning to environmental psychology and sociology. Jurors include landscape architect Lawrence Halprin and Donlyn Lyndon, FAIA. Deadline for nominations is November 15. Write Janet Singer, EDRA, P.O. Box 7146, Edmond, Okla. 73803; call 405/330-4863; or E-mail edra@telepath.com. ■

(For this month's Books section, see page 23)

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CIRCLE 65 ON INQUIRY CARD

LISTENING TO LANDSCAPE ARCHITECTS *continued from page 49*

Franklin: a recognition that important issues and problems are growing more complex.

This recognition is opening doors for American landscape architects abroad. He explained, "What's peculiarly American about our landscape architecture is that it regards what the community wants, what the environment needs, and what the client wants and needs as being part of a big puzzle that has to be fitted together." Such an attitude—together with their environmental ethic, their business savvy, and the ability to start and stop on a dime—makes American landscape firms popular with overseas clients.

What other trends did the panelists observe? Nearly all expressed confidence about their future. Projects are becoming larger, more significant, and more interesting. Walker was, perhaps, the least optimistic, being convinced that the public is turning away from nature. "Environmentalism is like a lot of things that are popular, like family values," he said. "The media whips up a frenzy, but I don't see effective demand in terms of increased budgets."

What about the fact that 85 percent of Americans describe themselves as environmentalists? Van Valkenburgh was convinced that the environment's increasing degradation is heightening the public's appreciation of nature. Indeed, said Roberts, "landscape architecture's environmental ethic is pervasive all over the world." O'Donnell added that one of the hallmarks of the 1990s is a now-cliched concern about sustainability: "We're much more interested than we were in the 1980s with being good stewards, with preserving limited natural resources."

Not always definable in traditional terms

The world economy, the panelists pointed out, is also creating new ways of working. Franklin explained that often "the work I do isn't definable in any traditional terms." His firm sometimes finds itself participating in two- and three-day charrettes, sponsored by an international client who gathers the outstanding experts from seemingly unrelated disciplines to define and solve problems posed by proposed large-scale development on a particular site. The exercise is far more efficient, Franklin observed, than the traditional planning process that stretches over a two-to-five-year period and is often obsolete upon completion. Many international companies, he added, now expect new facilities to be planned, designed, and operational in six months' time.

In surveying future markets, the panelists noted that the reclamation of industrial sites and of deteriorated neighborhoods, toxic sites, extraction areas, and the like will play an increasingly prominent role. And that work, Walker said, "tends to be centering, because it uses land that is already serviced, attracts the educated (research centers, the entertainment industry), and has a cultural component. It's not just land and housing. I think in our world we do have opposite, mindlessly opposite [illegible]." A trend that worries Van Valkenburgh is the paucity of highly [illegible] practitioners. "We're like a pancake that's [illegible] thinking in the same general direction [illegible] to hear this panel said "yes" [illegible] we didn't come from [illegible] orientation and outlook." [illegible] dubious race for fashion [illegible] by having to do [illegible] more optimistic Carmichael had [illegible] both our professions are good [illegible]

To provide a better picture of how the landscape architecture profession works, we take a closer look at four of the designers who participated in the RECORD roundtable. These profiles show some of the diversity in backgrounds and approaches found in the profession.



WILLIAM H. ROBERTS:

Taking the interdisciplinary path

Trained as an architect, Roberts "drifted into landscape architecture," he says, because it seemed more interesting than the construction details he labored over as a novice designer. "When you're revitalizing urban waterfronts or planning a new university campus," he says, "design encompasses cultural, environmental, behavioral, and political issues." He liked the broad opportunities.

Wallace Roberts & Todd, a 100-person international firm employing all manner of designers, planners, and engineers, took root in 1963 when Roberts and three other young University of Pennsylvania faculty members—landscape architect Ian McHarg and architects David Wallace, FAIA, and Thomas Todd, FAIA—submitted a competition-winning master plan for Baltimore's Inner Harbor. They founded their practice on the then-progressive idea of integrating the building professions into interdisciplinary teams, which Roberts still regards as the firm's greatest strength. Instead of incorporating small groups of engineers, environmental planners, landscape designers, and interior designers within a large architecture practice, as do large A/E firms, WRT built up a collaborative practice in several equally strong disciplines.

The firm's interdisciplinary nature and the fact that it has offices on both coasts (Pennsylvania, Florida, and California), provides a flexibility that buffers it from the effects of recession. After benefiting from the office and residential construction boom of the 1980s, for example, WRT was able, during the recession of the early 1990s, to shift its emphasis to planning and landscape architecture and to public, institutional, and overseas clients.

But the firm's broad capabilities also blur its identity. When Roberts tells a client how diverse his firm's services are, the response is often, "So you're an architect." As a result, WRT frequently seeks clients looking for planning services and promotes its architectural abilities only after having proved itself as a planner. "We can be like a chameleon," says Roberts.

About 70 percent of the time the firm works directly for the client, an arrangement Roberts finds preferable to working for an architect. "If we're responsible for all the hydroelectric studies, all the environmental studies, community planning, site planning, signage, and up to the walls of the building, the client inevitably gets better services, because we are free to challenge the architect if there are wasteful solutions." He also finds joint ventures with architects problematic, because "it's better for one person to be in charge."



MICHAEL VAN VALKENBURGH:

Finding a context for Modernism

One of landscape architecture's most respected firms, Van Valkenburgh Associates of Cambridge, Massachusetts, has become known for blending the Modern movement's essentially placeless language with more contextual responses, for developing a strongly sculptural approach, and for tackling the needs of degraded contemporary landscapes. Among the

(continued on page 162)

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CIRCLE 66 ON INQUIRY CARD

(continued from page 160)

recently completed projects of the 15-year-old, 13-person firm are the 85-acre Mill Race Park in Columbus, Indiana; the master plan and design for the renovation of Harvard Yard for Harvard University; the 4.5-acre expansion of the Walker Art Center Sculpture Garden for the Minneapolis Park and Recreation Board; and the master plan for the Iowa Center for the Arts at the University of Iowa, Ames.

"Sometimes we work for architects, sometimes they work for us," explains Van Valkenburgh. He prefers collaborating with "architects who are pushing the limits of the envelope." The designer credits his firm's success to "working 50 percent harder to be 10 percent better, to misquote Venturi."

As a teacher and as the former chair of the Harvard Graduate School of Design's landscape architecture program from 1990 until 1996, Van Valkenburgh worries about several current educational trends. One is that many landscape architecture programs are run by people who may have Ph.Ds but little or no practice experience. He also laments a tendency among some state university programs "to try to quantify and therefore obscure the importance of design."

Disagreeing with those who believe that design should be taught as a collaborative discipline, Van Valkenburgh finds that it's hard enough for students to master their own discipline. He also believes that teaching has veered too far in the direction of stressing process over product. "I don't think we should return to empty formalism, but we should place more emphasis on assessing the quality of the projects we make as a consequence of all this environmental and other input," he says.

Most important, however, Van Valkenburgh is convinced that in order to prepare designers for an uncertain future the schools should be educating them as generalists. He says, "I went through one of those BLA programs—it was a good one—where they tried to figure out the five or six things that people were doing in offices and then built studios around campus planning or playground design, vest-pocket parks, whatever. There are larger ideas you need to have in design."



PATRICIA O'DONNELL:

Where heritage and environment intersect

In 1982, when she founded Landscapes, a five-person firm that specializes in preservation, O'Donnell held two master's degrees: one in urban planning (with a preservation emphasis), the other in landscape architecture (with a concentration in applied behavioral research). The services her firm offers range from preservation planning, design, construction, and interpretation and management of historic sites and museums; through rehabilitation, ecological restoration, and maintenance planning for urban parks; to community [illegible] and interpretive planning. Her clients include municipal and [illegible], not-for-profit citizen groups, the National Park [illegible] museum curators and institution managers and personnel.

[illegible], who also founded the National Association of Olmsted Parks [illegible] parks in Rochester, New York, Louisville, Ken- [illegible] 1970s "environmental values [illegible] Why had this intersection [illegible] challenges of her work in [illegible] requirements of [illegible] instance, in which [illegible] for its vine-cov- [illegible] O'Donnell's work is [illegible] to make sure what you plan and design can be sustained, can be managed five years from now, 10 years from now." Her reports to clients, consequently, include proposals for future maintenance and rehabilitation, and her relationships with clients tend to be long-lasting.

Because Landscapes' clients tend to be public agencies and institutions, much of its work consists of trying to reconcile the interests of diverse groups and committees. This consensus-building process, O'Donnell explains, is a large part of every landscape architect's work. To the surprise of many architects, perhaps, it is also O'Donnell's favorite type of work.



COLIN FRANKLIN:

Understanding social and natural systems

Franklin was introduced to landscape architecture in the early 1960s as a young British architect working in Islamabad, Pakistan, on a Modernist plan that seemed to him unrelated to the local topography and culture. After earning an MLA from the University of Pennsylvania, Franklin and his landscape architect wife, Carol, joined with Leslie and Rolf Sauer—a scientist and an architect/landscape architect/planner, respectively—to found Andropogon in 1975. (The firm takes its name from the American field grass that is the first to colonize and heal the landscape after it is disrupted.)

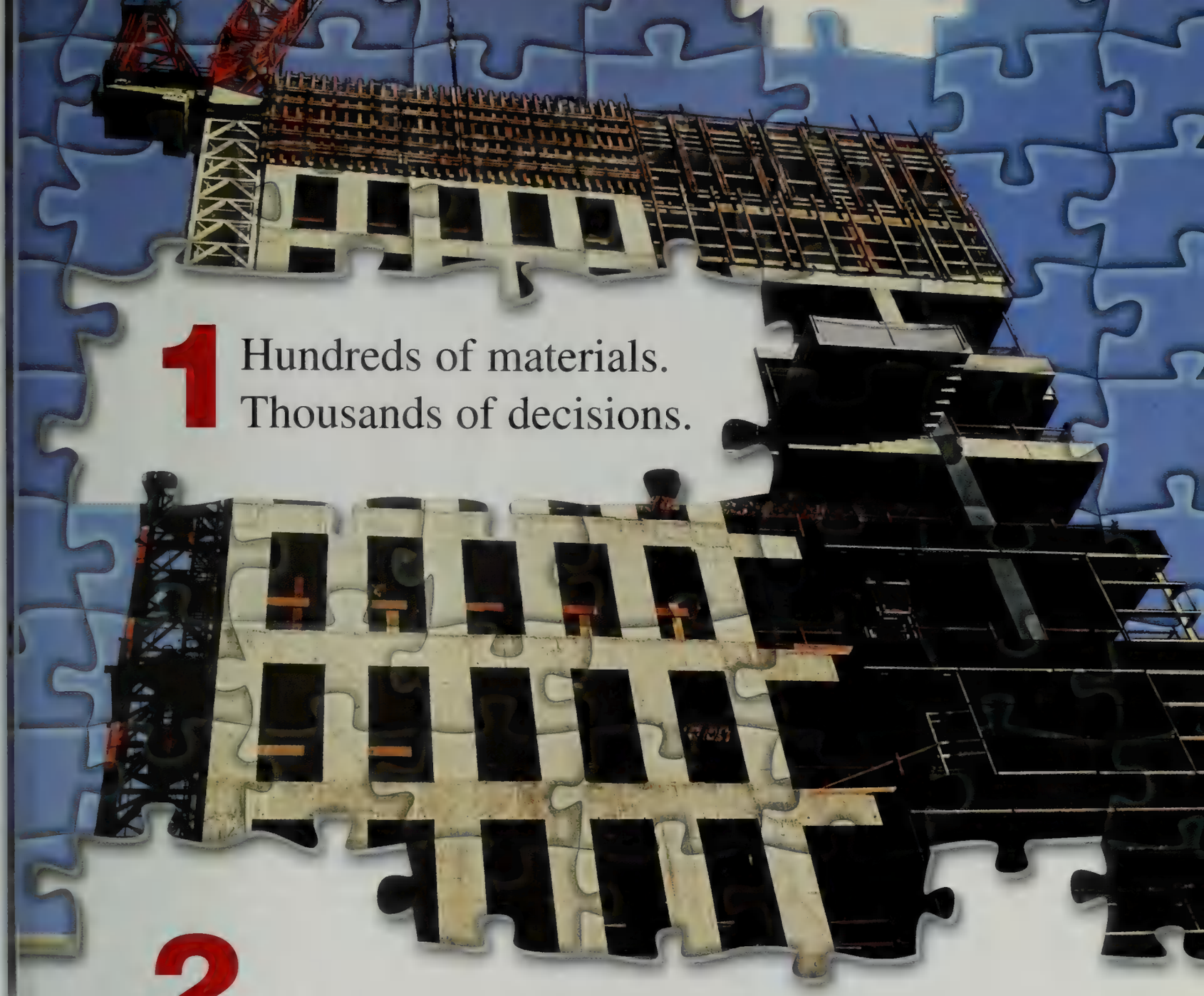
"We were interested in taking Ian McHarg's philosophy of combining natural science with landscape architecture and making a new discipline, what he called ecological design," says Franklin. The partners hoped to expand the meaning of collaboration, allowing all team members to stretch beyond their own disciplines and become "much more open and fluid in their approach," says Franklin.

Andropogon's completed work includes a master plan for part of New York's Jamaica Bay, which serves as a "refueling stopover" along the Atlantic Flyway for 326 species of birds. In Denver, the firm created a natural drainage system for the Stapleton Development Plan, integrating site drainage and storm-water management into a continuous system of swales, wetlands, and ponds. And the firm is now on a design team that is working to create a model for the U.S. Navy's nationwide program of renovating bases according to sound environmental principles.

"We're very good technically in understanding social and natural systems," says Franklin. "We go in with the idea of a participatory process and tend to work well with institutions. Some of the best things that happen on the job come from people who don't like something—committees, neighbors."

Work in the Third World comprises a small but significant proportion of the 20-person firm's workload. Franklin maintains it allows him "to see in sharper focus problems we have here." His experience in flood-plagued Sri Lanka, for example, underscored the reality of climate change and the need for regional sustainable planning. The firm's new roadways for the capital city of Colombo will incorporate storm-water management via a porous paving material that absorbs runoff. "We're thinking of the road as a major instrument in the environmental mix, getting synergies from putting roads in the right places," Franklin explains.

His overseas work has also involved him in new working methods that are collapsing the planning process from years into days and blurring distinctions between professions. Franklin sees these changes as healthy, making an analogy to the teamwork that developed the atom bomb in the 1940s at Los Alamos, New Mexico. He says, "I'm fascinated by the way these different scientists, all emigrés, were pulled together and had to find new ways of working. This is what America does." ■



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102	*36*	Poulsen Lighting
122	*46*	Precision Architectural Lighting
108-109	*39*	Prescolite
100	*34*	Raco Altura
161	*66*	Raynor
50-52		Readers' Choice Awards
100a-b	*99*	Roxul
173	*70*	Seiho International
78	*27*	Sherwin Williams Company
37	*21*	Sloan Valve Company
106	*38*	SPI Lighting Inc.
136-137	*51*	Sweets Group
163	*67*	3M
4	*3*	Technical Glass Products
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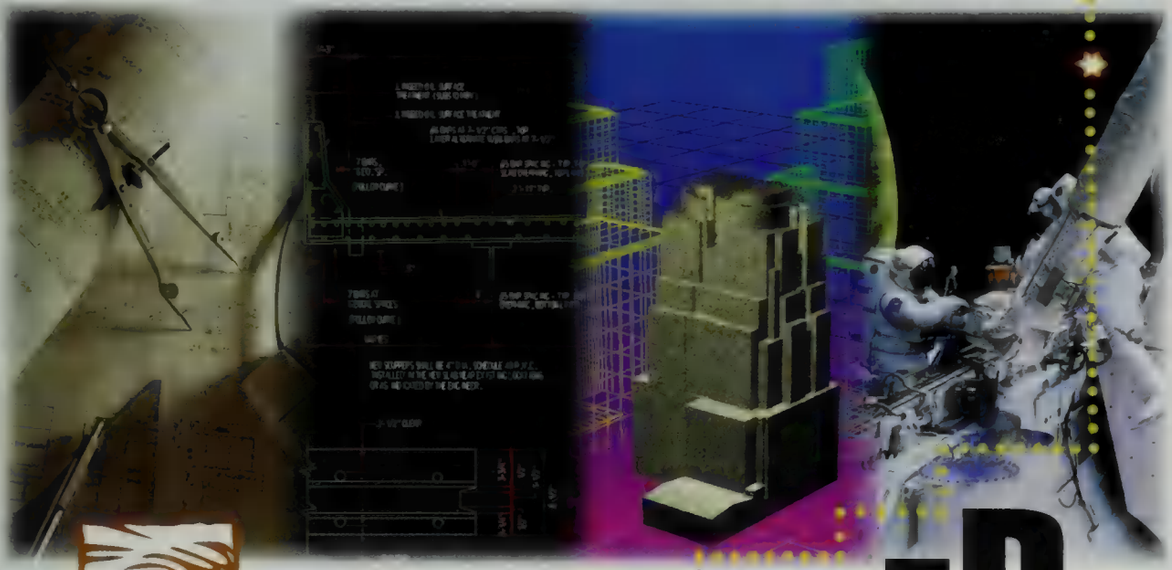
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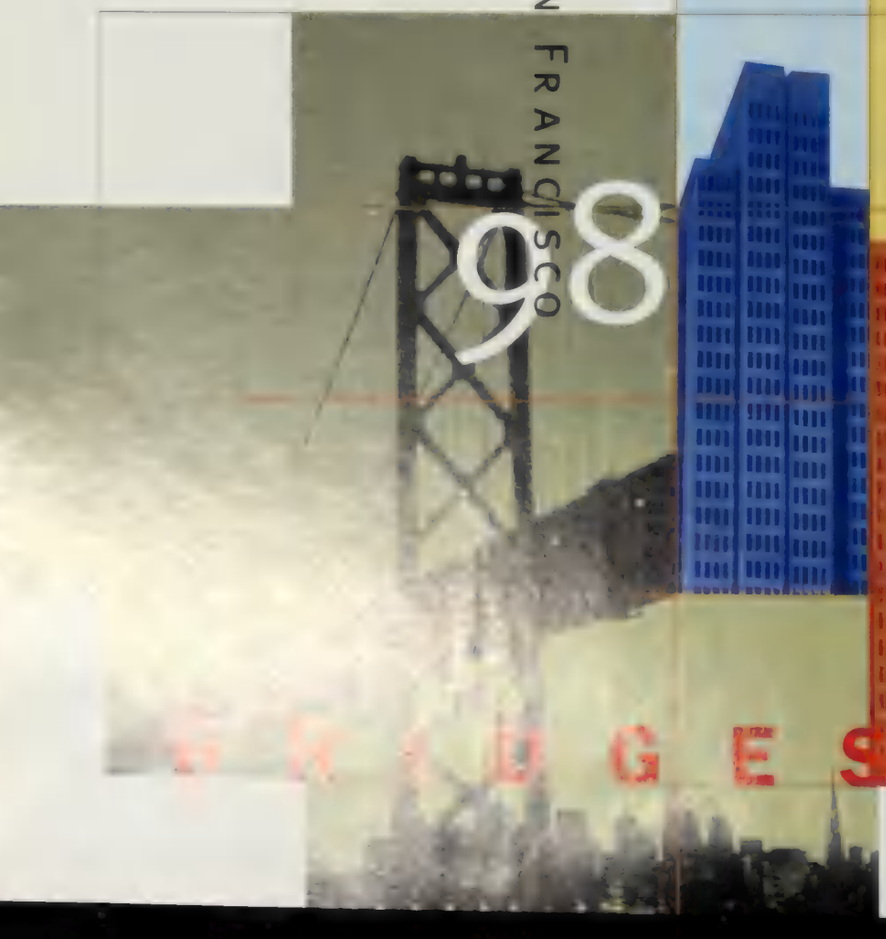
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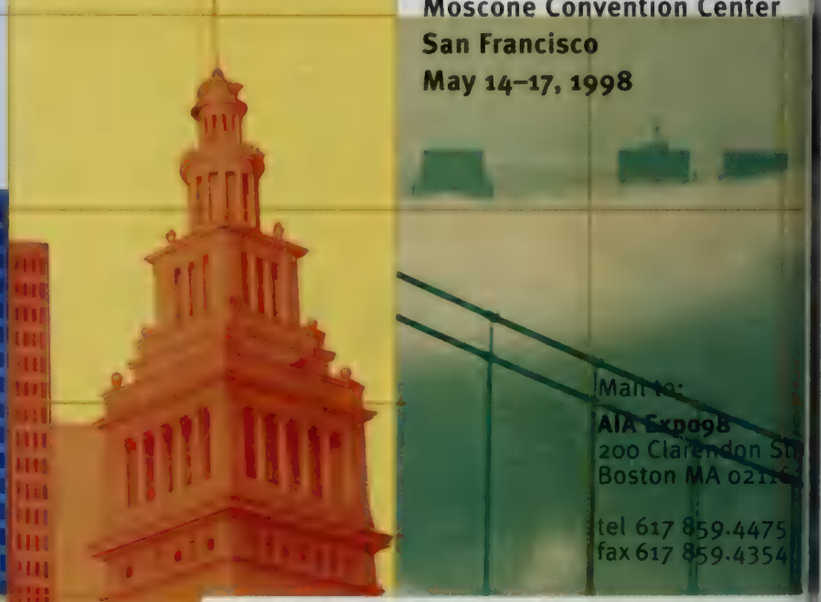
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INSTRUCTIONS

◆ Read the article "Case Study: SONY CD Factory Presents a High-Tech Lighting Challenge" (pages 123–28) using the learning objectives provided to focus your study.

◆ Complete the questions below, then check your answers (top of page 174).

◆ Fill out the self-report form on page 174 and submit it to receive two AIA Learning Units.

—Mark Scher, AIA Director Professional Education Products and Services

Questions

1. In terms of lighting, why would an architect need to understand CD-ROM manufacturing processes?

2. Modify the SONY project lighting objectives so that they might apply to other industrial projects.

3. Detail the main lighting elements of the SONY clean room and describe the implications of equipment planning to its illumination.

4. The combination of overhead staging and task lighting in the replication area for CD-ROM inspection was problematic. How would a special viewing booth solve the problem without increasing the lighting?

5. Describe the natural lighting problem in the staging area and offer two solutions for future projects for assistance during facility start-up.

6. Many commercial projects include warehouse and docking areas. What lessons might be transferrable to other facilities?

7. What data-collection techniques used by the DELTA team are applicable for predesign programming as well as post-occupancy evaluation?



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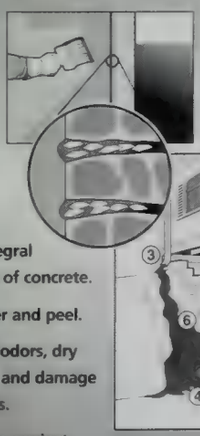
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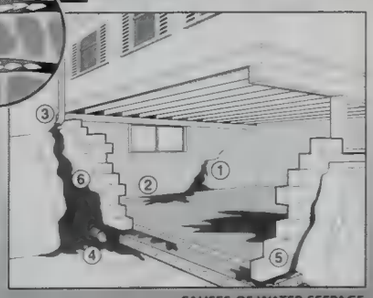
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AIA/ARCHITECTURAL RECORD CONTINUING EDUCATION

ANSWERS

Answers refer to the article "Case Study: SONY CD Factory Presents a High-Tech Lighting Challenge" (pages 123–28). The questions appear on page 172. To receive CES credits, fill in the self-report form below.

1. The lighting in the manufacturing spaces needs to accommodate the many visual tasks involved in CD production and to meet clean-room standards for some of the manufacturing processes.

2. Create work spaces with good task visibility and visual comfort for employees. Minimize energy use by using energy-efficient lamps, ballasts, luminaires, and controls. Create bright, visually stimulating spaces to help keep workers alert. Keep the initial cost of the lighting installation within budget. Install energy-efficient lighting products.

3. The lighting must prevent adding dust to the air or disrupting air flow over surfaces in the room. The SONY plant uses recessed 2-by-4-ft clean-room luminaires with three F32T8 lamps and electronic ballasts providing ambient light. These luminaires are sealed to Class 10,000 standards. Horizontal illuminance in the room depends on the changing amount of equipment in it: machinery blocks light and lowers illuminance on the floor. This may or may not be a problem, but lighting calculations need to take into account the ultimate space configuration and what equipment may need to be added, removed, or be mobile (as in technical, medical, and office facilities).

4. This viewing booth could be specifically designed to enhance viewing tasks by using side lighting, a selective light spectrum, specular reflections, diffuse lighting, and other techniques suited for visual-inspection tasks.

5. Sunlight through high clerestory windows in the adjacent corridor creates glare and reflection on the computer screens in the staging area facing the windows. Immediate solutions would be to install glare-control devices on the clerestory windows (i.e., shades) and higher-luminance screens with antireflection coatings for monitors and VDTs.

6. Warehouse: A white-painted ceiling combined with uplighting lowers the contrast of the bright light source against the ceiling, reducing the sensation of glare. The bounced light from the ceiling helps make light levels more uniform and softens shadows cast by objects below. Shipping: Workers face extreme glare and attendant shadows from a high-candlepower light source close to their line of sight when exiting trucks during loading/unloading. Lower-brightness lamps and a larger reflector system providing diffuse light into trucks improves the lighting.

7. Rating surveys on user preferences, their visual tasks, and what they are trying to see; checklists; and structured on-site user interviews.

AIA/CES SELF-REPORT FORM

(Use to report learning units earned for Architectural Record only)

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"Case Study: SONY CD Factory Presents a High-Tech Lighting Challenge" (pages 123–28)

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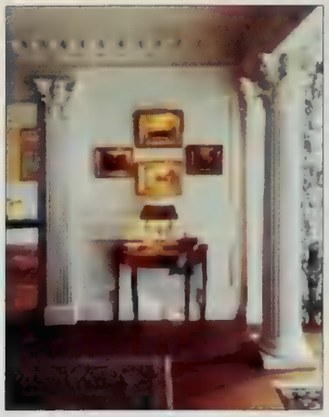
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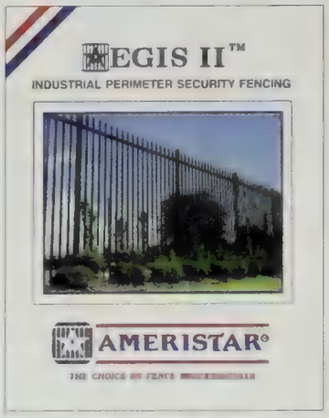


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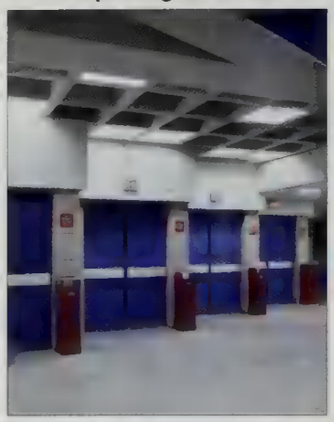


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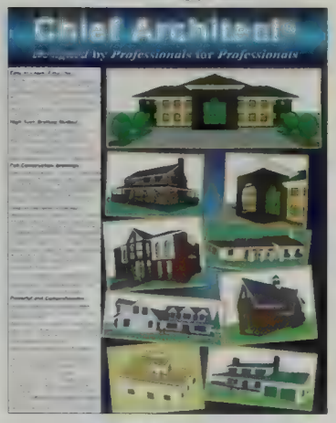


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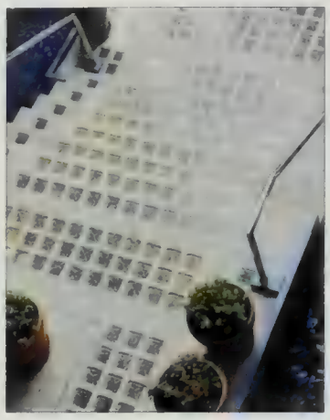
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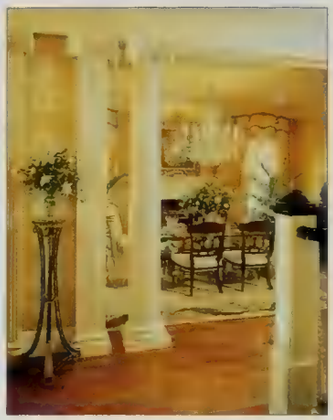


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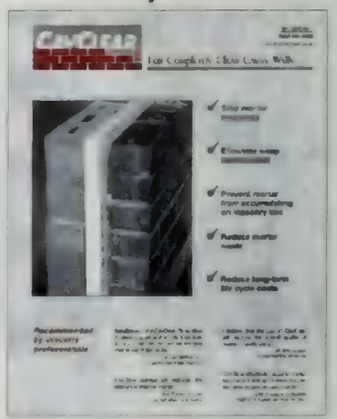


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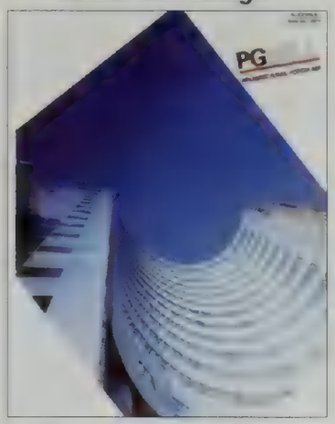


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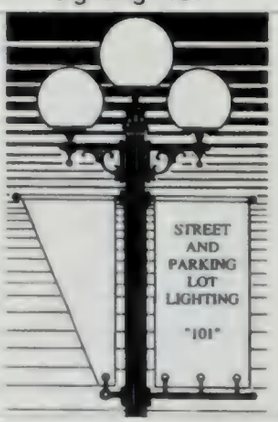
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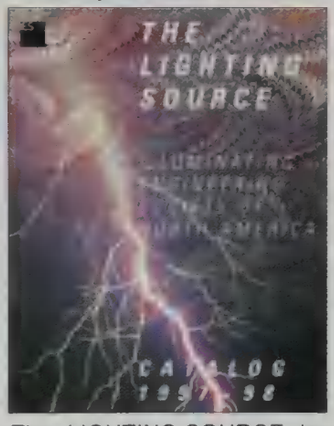


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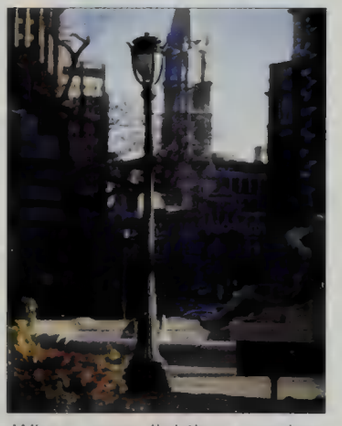


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THE FUTURE Forecasting from demographic trends, a strategic consultant envisions much more than statistics.

BY ELIZABETH A. KROL

Embedded deep in the futuristic fantasies of science-fiction writings lies a morsel of truth, a whisper of what may come. Like a fortune teller's ramblings, they spark a percolating little doubt: "What if it's true?"

Well, according to futurist guru Jerry Epperson, we should consider Disney's ideal new town, Celebration, for a peek ahead. Full-blown sci-fi, with mind control devices and big brother, it is not, but a thread of Huxley or Vonnegut is in its fabric. The town's homes, completely computerized and high-tech, take a Brave New World-ish step. Police can monitor all the houses electronically, and kids carrying tyke-size, beeperlike toy alligators can be summoned by the touch of a computer key.

Disney has its believers and its nonbelievers, and Epperson is a believer. "If you're in Florida and you don't see Celebration and you're in any part of the design trade, you're missing a real opportunity to see the future," Epperson says with the zeal of a prophet. He preaches the gospel of the town of the future, which now has 500 houses to call its own.

This fortune teller draws his conclusions from demographics, not [illegible]. As a strategic consul[illegible] Epperson [illegible] demographic shifts that will force change in architecture, design, and building in the future.

Casting his gaze forward in time—40 years forward, to be exact—Epperson spoke of a sputtering end to the great American melting pot. The population, no longer overwhelmingly white, will comprise double the current number of African-Americans, quadruple the number of Hispanics, and five times the number of Asians. These changing dynamics, Epperson believes, will spawn separate ethnic suburbs that cater to the tastes of individual cultures. For architects, this means a new clientele and a new way of working.

But even before those 40 years have passed, another cultural shift will manifest itself: the aging of the baby boom generation. For the [illegible] 33- to 51-year-old baby boomers, the death of their parents [illegible] with small fortunes. By [illegible] 2010, Epperson estimates, baby boomers will have inherited $16 trillion. Older but not poorer, this population will have the means to purchase a second home or to construct a dream house, with all the bells and whistles. Switching houses will dump a glut of starter homes on the market, swamping the anemic ranks of 44 million 18- to 33-year-old Generation X-ers.



Celebration, Fla.: The future of the American home, or an anomaly?

But with the swing of the pendulum, somewhere around the year 2005, a tidal wave of 64 million "echo boom" kids, who are now under the age of 18, will reach maturity. More starter homes will be needed to accommodate their massive numbers—and the near-elderly baby boomers who may be abandoning their larger homes for smaller ones.

Extrapolating from statistics, Epperson predicts that such significant demographic developments will lead to a revolution in design—or at least a different approach to residential spaces. More bedrooms, larger bathrooms, and more details, he says, will characterize the baby boomer's home of choice.

Fighting the battle of the bulge or the batter of daily life, baby boomers will have their new bathrooms—in their second homes, their dream houses, or their retirement homes—equipped with work-out machines, spas, whirlpools, maybe even big-screen TVs. These amenities will focus time and friends in the realm of the bathroom, or so the story goes.

Epperson envisions prosperous times for the furniture and home-design industry. Ninety-five million Americans are unnecessarily miserable in "under-decorated" homes, he says, and they need help. He proposes "Project Vision," calling for the end of the furniture and home-decor store and the advent of custom interior design for all. By paying a fixed fee per month, like a credit-card bill, homeowners can have the interiors of their dreams within their economic reach. For architects offering interior design services, Epperson's plan could translate into a monthly retainer for ongoing in-home work.

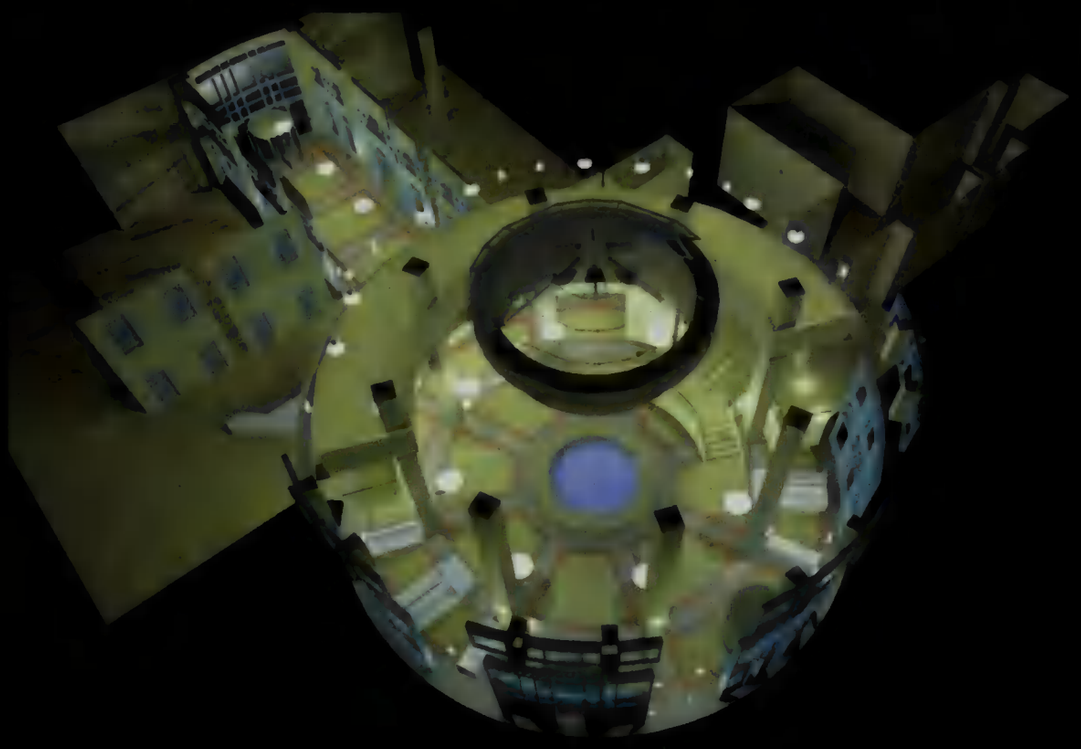
Entertaining in bathrooms and the end of do-it-yourself decorating? Perhaps. Whatever the specifics, Epperson says, a huge generation with lots of money to spend will feed a demand for more services from architectural firms. ■

Elizabeth A. Krol, a summer intern at RECORD, attends the S. I. Newhouse School of Public Communications at Syracuse University.

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